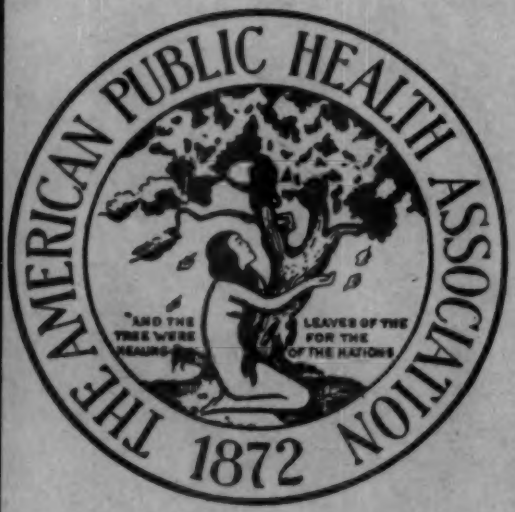
American Journal of

PUBLIC HEALTH

and The Nation's Health



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volume 46

number 8

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and the Nation's Health

Official Monthly Publication of the American Public Health Association, Inc.

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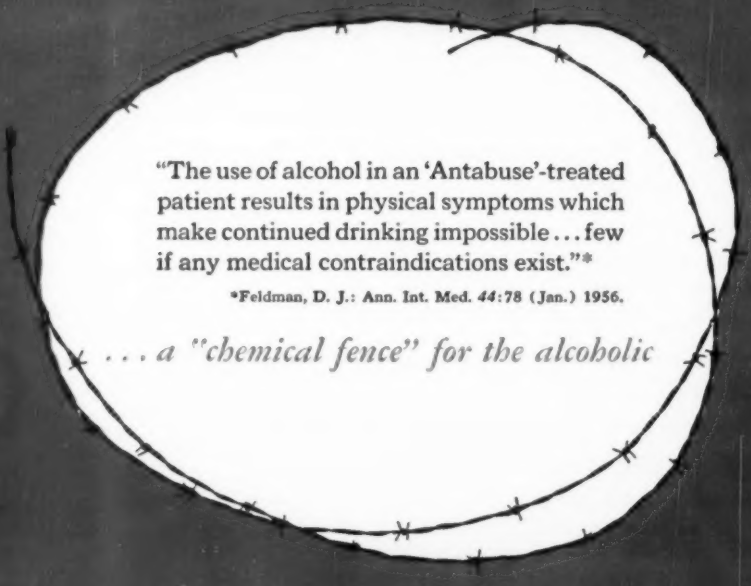
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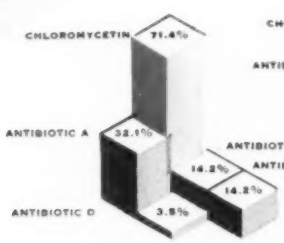

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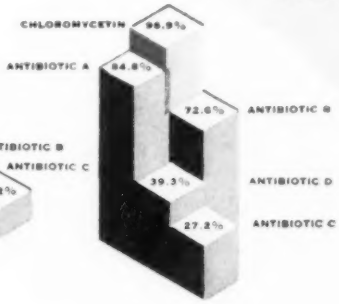

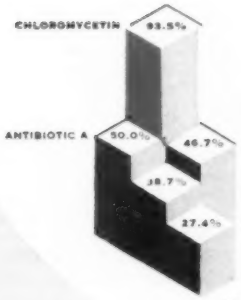

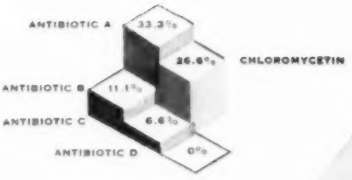

*This graph, based on *in vitro* studies, is adapted from Perry, R. E., Jr.: *North Carolina M. J.* 16:567, 1955.

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INSIDE SCIENCE

The Vital Story of Vitamin B₁

(Thiamine)

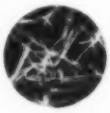
by Science Writer

History. The discovery of vitamin B_1 resulted from research into the cause of beriberi. Almost 50 years passed between Eijkman's discovery of the relationship of the disease to diet and the famous work of Jansen and Donath who first isolated the crystalline vitamin from rice bran.

Within ten years of that first isolation the vitamin's chemical structure was determined and it was successfully synthesized.

Eijkman's work resulted in the development of a theory that beriberi was caused by a lack of some factor in the diet and not by a toxin or infectious agent. This idea was not readily accepted until the growth of dietary knowledge proved it correct.

Isolation and Synthesis. In 1926 Profs. Jansen and Donath accomplished the isolation of crystalline vitamin B_1 from rice bran. In 1931 Windaus and coworkers successfully isolated pure vitamin B_1 and established its empirical formula. In 1936 R. R. Williams, and independently R. Grewe, explained the vitamin's chemical structure. That year, R. R. Williams and J. K. Cline accomplished the synthesis of thiamine which is in wide use today. Andersag and Westphal also synthesized the vitamin in 1936. Another synthesis was described by Bergel and Todd in 1937.



Photomicrograph of B_1 crystals

Chemical and Physical Properties. Thiamine hydrochloride is white, water soluble, with a nut-like, salty taste and yeast-like odor. Its empirical formula is: $C_{12}H_{17}ClN_4OS \cdot HCl$. Thiamine produced by synthesis is identical chemically and in biological activity with that obtained in pure form from nature.

Deficiencies. A deficiency of thiamine is characterized by these symptoms: depression, irritability, fearfulness, lack of initiative and interest, loss of appetite. Symptoms vary since in usual practice deficiencies of other water-soluble vitamins occur. Medical treatment is simple: a sufficient amount of thiamine is administered to relieve symptoms quickly and the physician provides for a continuing adequate intake.

Beriberi victim

A severe deficiency of thiamine leads to beriberi, a serious and sometimes fatal disease. While beriberi is almost a medical curiosity in the United States, it is common in countries in which polished white rice is a staple of the diet.

Human Nutrition Requirements. Thiamine is one of the nutritive elements the human body needs daily and does not store in quantity. The minimum daily requirements established by the U. S. Food and Drug Administration for the prevention of symptoms of thiamine deficiency disease are:

Adults	1.00 mg.	Children (1-5 incl.)	0.50 mg.
Infants	0.25 mg.	Children (6-11 incl.)	0.75 mg.

The Food and Nutrition Board of the National Research Council recommends the following dietary intake of thiamine for healthy persons in the U. S. A.

Recommended Daily Intake in Milligrams		
Age	*Men*	*Women*
25	1.6	1.2
45	1.5	1.1
65	1.3	1.0
Pregnant (3rd trimester)		1.5
Lactating		1.5

The Council recommendations for infants and children vary below and above these figures, based on age and sex. Various illnesses and stress situations can exhaust vital reserves of thiamine. So, for the physician, vitamin B_1 is prepared in various dosage forms and potencies for therapeutic and prophylactic use.

How do human beings receive thiamine? It is widely distributed in foods of animal and vegetable origin, particularly cereal grains and dry legumes. Because of public demand for refined products which millers must meet for obvious economic reasons, a loss of thiamine and other factors occurs during processing. The thiamine loss is overcome through the use of *enrichment* in cereal grain products for which Federal Standards exist, or in other foods such as breakfast cereals, by *fortification* or *restoration*. When enriching, fortifying or restoring, the food processor adds the necessary amount of pure thiamine (and other vitamins and minerals) to the food so that the finished product meets Federal, state and territorial requirements or contributes to the consumer an amount of the vitamin which dietary experts believe significantly useful.

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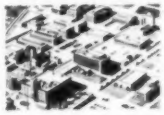

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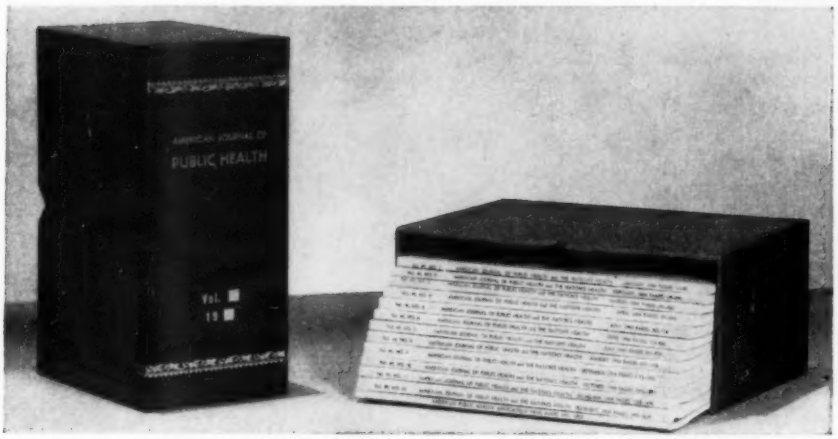

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1. J. Lab. & Clin. Med., *45*:679, 1955.
2. Bull. World Health Organ., *10*:823, 1954.

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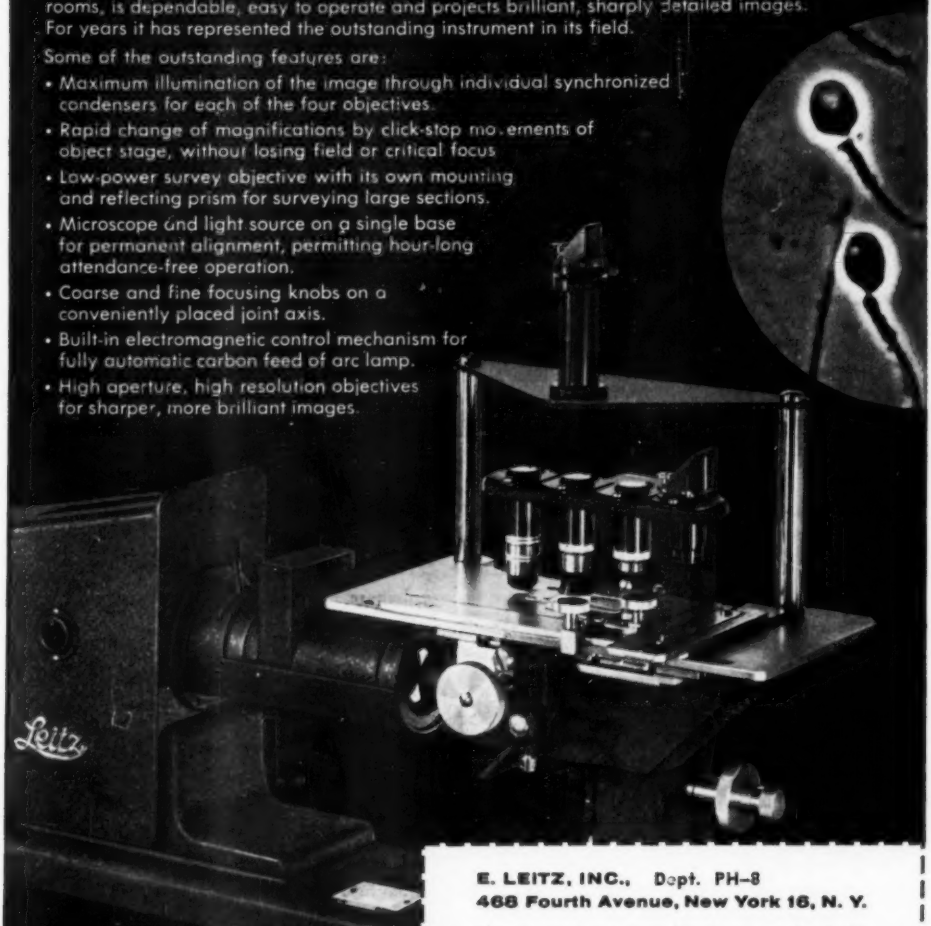

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1. Shils, M. E.: Food and Nutrition Relating to Work and Environmental Stress, in Wohl, M. G., and Goodhart, R. S.: Modern Nutrition in Health and Disease, Philadelphia, Lea & Febiger, 1955, pp. 947-976.
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The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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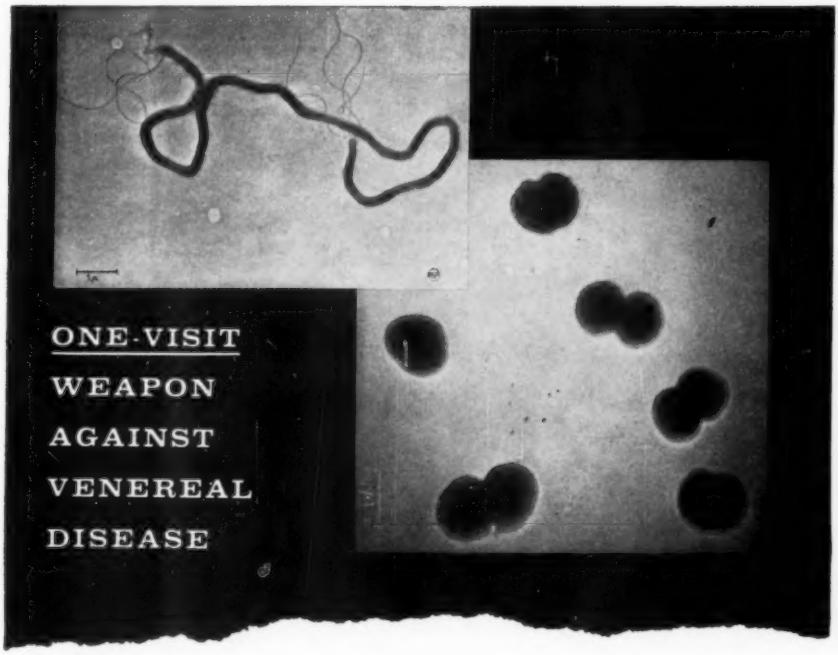

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1. Smith, C.A., and others: Am. J. Syph., Gonor. & Ven. Dis. *38*:136 (March) 1954. 2. Council on Pharmacy and Chemistry. New and Nonofficial Remedies. J. B. Lippincott Co., Philadelphia, 1955, p. 166.

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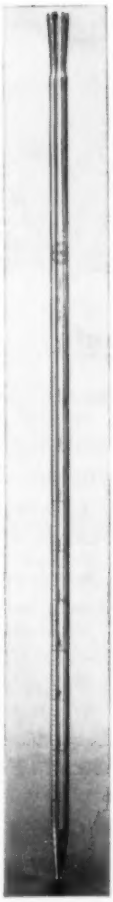

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Volume 46 August, 1956 Number 8

The Public Health Problem of Accidental Poisoning

A Condensation of a Symposium

The American Medical Association reports that there are now more than 250,000[1] brand-name chemical products available for industrial, farm, and home use, with new forms and combinations constantly being developed. Their potential toxicity poses an important problem for all concerned with public health. The five papers of the symposium, necessarily condensed here, clarify the relative importance of the broad problem; summarize current preventive efforts by medical groups, official health agencies, and educational institutions, and suggest several further steps.

On the Farm

The first aspect of the broad problem to be considered was accidental poisoning on the farm, the discussion presented by L. F. Garber, M.P.H. Of all the potential farm poisons agricultural insecticides, he said, have received the most attention in recent years, particularly the compounds identified as organic phosphates. Numerous studies on the toxicity of, and exposure to, insecticides indicate that they do present definite hazards, especially in certain large farm and orchard areas where numbers of seasonal workers are employed. Mr. Garber presented the results of several studies which pertained specifically to farm use.

In a study of parathion exposure and cholinesterase response among Quebec apple growers, Kay and associates[2] concluded that marginal intoxication was experienced by a group consisting of one female and 32 male adults. In a study of apple orchards in the State of Washington, Summerford and associates,[3] attempted to correlate cholines-

Dr. George M. Wheatley presents a condensation of five papers on the growing problem of chemical poisoning which were presented before a Joint Session of the American School Health Association and the Maternal and Child Health, Occupational Health, and the School Health Sections of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 18, 1955. The authors and titles of the individual papers appear at the end of this article.

terase values with exposure to parathion in a group of 258 persons with different degrees of exposure. They found that mixing-plant personnel, commercial applicators, and part-time applicators who were known to have a definite and consistent exposure, showed significant reduction in average cholinesterase values during the period of exposure. Young and associates [4] stated that occupational diseases in California due to organic phosphate insecticides rose from 20 per cent in 1950 to over 40 per cent in 1953 with sprayers accounting for the greatest number of cases by occupation. The Bureau of Adult Health of the California State Department of Public Health [5] reported 391 cases of occupational disease caused by agricultural chemicals in 1954. Of 122 cases of systemic poisoning, 101 were due to exposure to organic phosphates with parathion exposure associated with 85 of the cases.

The other major group of insecticides, the chlorinated hydrocarbons, are less toxic to man. The California Bureau of Adult Health [5] reported only six cases of systemic poisoning due to exposure to chlorinated insecticides during 1954. A review by Dr. L. C. McGee [6] listed 73 references and includes among other remarks in the summary, "The number of reported cases is remarkably small in view of the widespread use of (chlorinated) insecticides and the human element of carelessness and disregard for the hazard of accidental poisoning." This report also points out that the symptoms observed after reasonably severe exposure by inhalation of chlorinated insecticides have often been associated with the solvent used to prepare an emulsion for spraying.

Other cases of accidental poisoning, reported by Axelrod,[7] are lead poisoning among apple orchard workers, methyl bromide poisoning when used to process figs, and one death and five cases of serious illness from exposure to ethylene chlorhydrin used to treat seed potatoes.

Based on mortality statistics, accidental poisoning is responsible for a very small percentage of fatal farm accidents. Experiences in Missouri, Kansas, and Iowa,[8] Mr. Garber found indicate that the problem of accidental farm poisoning is of less magnitude on the small Midwestern farm where farmers do much of their own work. He emphasized, however, that a considerable error as to the magnitude of a problem is possible when conclusions are based entirely on mortality figures. He pointed out, also, that the significance of accidental poisoning on the farm is to some extent minimized by the necessity of separating work and home accidents. The sixth revision of International Lists of Diseases and Causes of Death [9] defines "farm" as including buildings and land under cultivation, but excluding home and home premises. Since the small farm is often a family operation, there must be some overlapping between farm and home. For a true picture of accidental poisoning on the farm some portion of home accidents must logically be included.

In the Home

The problem of accidental poisoning in the home was presented by George M. Wheatley, M.D., M.P.H., who underscored the fact that the greatest potential accidental poisoning hazard lies in the thousands of products containing new chemicals or combinations now being marketed for home use. Valuable and harmless as all these products are when properly used, every one of them, from aspirin to the newest insecticide, is a poisoning hazard if misused.

Home misuse is common. More than four-fifths of deaths from accidental poisoning at all ages in the United States during 1954. Dr. Wheatley pointed out,

are listed as "home accidents" by the National Safety Council. Children under five formed the largest group, accounting for more than one-third of the total number of deaths.

Mortality is only part of the picture. Evidence [10] is now accumulating for the first time that for every fatality there are hundreds of nonfatal home poisoning accidents, most of them among young children. In 1952, for example, the American Academy of Pediatrics [11] made a survey of accidents encountered by members in private practice which showed poisoning to be the cause of 51 per cent of all child accidents reported. Of the first 500 cases of nonfatal poisoning at all ages reported by hospitals participating in the Chicago Poison Control Program,[12] 467 were children under five—most of them between one and three years of age. As those familiar with child development know, this is the runabout, exploring, "hand-to-mouth" stage when motor activity becomes intense, curiosity is insatiable, and experience is nonexistent.

Common substances responsible for accidental poisoning deaths among children under five for 1949–1950 in this country were aspirin, kerosene, and lead poisoning. More recent figures, based on replies from poison control centers to an American Academy of Pediatrics' questionnaire, indicate that drugs or medications still head the list, with salicylates as the largest single drug. Sweetened or flavored aspirin is frequently involved. The attractiveness of candy-type medications, the wide use and availability of aspirin in most households, and overdosage of babies under one year of age have been given as contributing factors.

Lead poisoning is a serious problem because it often results in anemia, convulsions, or death. Childhood plumbism can be extremely difficult to recognize and is rarely acute enough to be alarming in the stages when treatment is most effective. The proportion of deaths to total number of cases reported is higher, therefore, than that of other common substances responsible for accidental poisoning.

Kerosene poisoning cases are seen most frequently in 12 Southern states where it is still commonly used as fuel oil. Availability, easy access, its resemblance to water, and increased thirst in warmer sections or seasons have all been given as contributing factors.

In summarizing control measures taken Dr. Wheatley mentioned the various legislative measures taken since 1906 to insure adequate testing and labeling of food, drugs, and various chemicals.[13] But there are other important aspects of this complex problem, he emphasized, which cannot be covered by even the best of laws. Education and engineering are two such fundamental approaches.

Medical and public health groups and official agencies concerned have used these two approaches in dealing with those segments of the problem which come within their area. Measurable progress is being made as realization grows that its solution depends on understanding and increasing cooperation between a variety of agencies and individuals outside as well as within the medical field. Business interests, technical, and other skilled workers, and various community agencies are all involved.

In 1950, for example, the American Academy of Pediatrics organized a nation-wide committee on accident prevention, primarily to interest physicians in preventing child accidents. Growing out of this committee's work, a pattern for a poison control program was developed in Chicago which has aroused nation-wide interest. The Chicago Poison Control Center began operation in 1953 with six hospitals, the Chicago Board of Health, and the State Toxicological Laboratory participating. In less than

a year the six hospitals had increased to 20 and the program expanded to neighboring areas, adding three additional full-time health departments and five medical colleges to the agencies participating. A manual for the treatment and recognition of toxic agents was prepared. This has been used for two years by other centers which have been developed in many locations. It will soon be printed as an official publication of the American Academy of Pediatrics with the aid of a grant from the Johnson and Johnson Company.

As poison control centers developed in a dozen other cities, it became clear that they should not be limited to the care of children, but should include all cases of poisoning. A step toward broadening the poison control program was taken when the American Medical Association formed its Committee on Toxicology in September, 1954. Through the good offices of this committee, the American Academy of Pediatrics' report on precautions regarding salicylates was accepted by the American Medical Association's Council on Pharmacy and Chemistry. The Food and Drug Administration followed shortly after with a regulatory statement of policy on labeling salicylates in the interest of preventing misuse, especially by children.

Under the aegis of the American Standards Association's Committee on Hazards to Children, sponsored by the American Academy of Pediatrics, a new American standard has been worked out for paint safe to use on children's toys, furniture, and interior home surfaces.

In Home Hobbies

One interesting aspect of home poisoning—health hazards in home hobbies—was presented by Marion Gleason. Mrs. Gleason also pointed out that, although most of the thousands of trademarked products now available to hobbyists are harmless when properly used, many contain ingredients that can cause acute or chronic injuries if the warnings on the labels are ignored.

Doctors are aware of the toxicology of such agents as carbon tetrachloride, nicotine, methyl alcohol, and the organic phosphorous compounds, and injuries to the liver, kidneys, heart, and brain from the inhalation and skin absorption of such poisons are fully described in medical literature. But the symptoms of nephritis and hepatitis, obscure anemias, amblyopia, cardiac failure, and some virus infections closely resemble those of exposure to a number of chemicals in common use in homes and on farms. There is a possibility that the true causative factor in some cases of illness may be overlooked by both the patient and the attending physician.

Mrs. Gleason used carbon tetrachloride as an example of the health problems presented by unrestricted home use of toxic materials. When the efficiency of this chemical as a cleaning solvent was discovered, its greatest asset of nonflammability brought it quickly into wide industrial use. Because of its high toxicity, however, large manufacturing concerns no longer use carbon tetrachloride if a less dangerous chemical can be substituted. Yet it is found, in its pure form or as a component in many wax polishes, upholstery and rug cleaners, and other home products. Insect collectors, amateur photographers, stamp collectors, and any number of other hobbyists use this efficient solvent. Few of them know that it is twice as toxic as chloroform, that a brief exposure to a large amount can kill quickly, and continued exposure to the fumes of a relatively small amount can seriously damage the liver and kidneys.

The recommendation of safety engineers for the marginal safe use of a halogenated hydrocarbon is simple: "If you can smell the odor you are breath-

ing too much of it." The practice of keeping open bottles or dishes of this solvent handy is common in a great many hobby activities. Unless ventilation is adequate, the practice is not safe.

Health and safety workers are not always sufficiently aware of this type of health hazard. At a meeting of 100 safety lecturers for a state organization, the general opinion was, since carbon tetrachloride would not burn, it was safe. The craft teacher of the organization actually recommended keeping a bowl of the carbon tetrachloride close at hand on work tables for ready use as a solvent or cleaner. A woman in a manufacturing plant who followed the same procedure was dead at the end of the week of a similar exposure.

Health hazards in amateur photography should be emphasized because of the wide popularity of the pastime. Ether and cyanide are no longer used extensively, but a glance at a list of modern chemicals employed in photographic processes shows that the amateur darkroom still has its hazards. In the "A's" alone are hydrochloric acid, nitric acid, oxalic acid, sulfuric acid, methyl alcohol, and aniline. A special hazard exists for photographic amateurs who improvise darkrooms in kitchens and bathrooms. Some of the chemicals used, when poured down the drain can form lethal gases which back up in the drains and into the work space of the hobbyists.

Mrs. Gleason suggested that, in addition to the actual poisoning hazards inherent in careless use of chemicals in hobbies, too little attention is given to the possible accident-predisposing effects of chronic and episodic exposure. Even a mild exposure to nicotine, commonly used by gardeners and farmers, can cause dizziness, auditory and visual disturbances, and marked weakness. Mrs. Gleason raised the question, among others, of how many tractor accidents on farms might basically be due to the accident-predisposing effects of careless exposure to dangerous materials.

The great hazard to children in home hobbies is, of course, the danger of eating or drinking the many products left within their reach by careless adults. How we can extend control over the misuse of dangerous materials used by hobbyists is an important aspect of the public health problem of accidental poisoning.

What Official Agencies Can Do

The role of official health agencies in the prevention of accidental poisoning was outlined by Ralph K. Longaker, M.P.H., and Charles M. Cameron, Jr., M.D., M.P.H., who stressed the point that official health agencies have the same concern toward the control of accidental poisoning as they have for any condition seriously affecting the health of the public. In developing an effective program for prevention of accidental poisoning health agencies can apply principles similar to those used in the solution of other public health problems and adapt successful technics from other areas.

The importance of definitive epidemiologic information about specific poisoning hazards in a particular local health jurisdiction cannot be overemphasized. Data on seasonal trends, types of poison, age groups, location, and various contributing, causative or underlying factors may be found in death certificates and other vital records. Generally overlooked, however, is another equally productive opportunity. Collection and analysis of data from the files of local emergency clinics, police and rescue crews, physicians, or hospitals is also rewarding. The exact method of approach is, of course, contingent upon local conditions.

Using these studies as the first step, a working diagnosis of the extent of the community problem can be made. The

health department can then initiate a planned program of professional and community education designed to create public awareness of the hazards which may lurk in the hobbies, farm practices, and other elements of daily life.

Full mobilization of the resources of the local health agency for the effective control of accident poisoning includes the use of the corps of trained public health personnel in daily contact with families and individuals. The public health nurse, for example, has daily opportunities in home visits to discuss and show the importance of safe use, storage, and disposal of medicines and household compounds.

Sanitation personnel also have frequent opportunities in daily activities to apply their knowledge of adequate ventilation, vector control, refuse disposal, and general cleanliness to the prevention of accidental poisoning. Advice as to less toxic substitutes for insecticides, proper methods of storing toxic chemicals, and recommendations regarding the adequacy of ventilation in certain circumstances, for example, may be of equal or even greater importance than the more traditional advice on many routine practices.

Similarly, field and laboratory personnel in occupational health, air pollution, and industrial sanitation can detect and confirm suspected exposures to toxic gases and vapors, with recommendations for specific corrective measures.

Hospitals and physicians frequently need to know the toxic ingredients of a commercial chemical specialty before beginning specific or even symptomatic treatment. The facilities of a poison information center may be needed to supply these data and official agencies can lend their support to the establishment and maintenance of a reference resource of this type.

As the poisoning problem is more completely identified, official health agencies can determine the need for additional protection from poisonous substances through improved packaging and labeling and recommended practices for their sale, storage, use, and disposal. Proper enforcement of existing statutes may do much to prevent needless poisonings. Legislation dealing with labeling of common household drugs and chemicals is best approached by state and federal governments. Health agencies can assemble data that will help to determine needed legal measures.

The educational activities of other community agencies and individuals who share a common goal with the official health agencies should be utilized in a community-wide informational program. The educational potential of private physicians—especially pediatricians—should be tapped, for example. Guidance for parents in common child health hazards is incomplete unless recognition is given to accidents as the leading cause of death among children.

Community health councils, PTA's, 4-H Clubs, and other lay and professional groups can be most helpful in planning community educational measures. And, of course, standing almost without equal are the public and private educational systems with whom coordinated planning should be conducted by official health agencies in their efforts to reduce accidental poisoning as a needless and preventable cause of death.

What Educational Systems Can Do

The responsibilities of such educational institutions in the prevention of accidental poisoning were enlarged upon by Fred V. Hein, Ph.D. The primary responsibility for the prevention of accidental poisoning, Dr. Hein emphasized, lies with the home. But educational institutions can also make a vital contribution through the use of existing channels of adult education, in-

cluding home-school organizations such as the PTA, and through emphasis on preventive procedures in appropriate areas of learning during the entire school career of our children and youth.

Existing adult education programs, with their current reported enrollment of one out of three adults,[14] offer many opportunities for interpretation of the hazards of accidental poisoning and methods of prevention. However, whatever is offered in the way of education about accidental poisoning must be appropriately integrated to be effective. In a mathematics class, for example, the use of statistics on accidental poisoning would be justified when such problems and the processes involved were being considered. But to interrupt the progress of the same class for a special lecture on the subject could hardly be acceptable. This principle must be kept in mind in planning the approach in all adult education activities, including meetings, institutes, forums, conferences, etc.

Education has one exclusive and unique responsibility arising from the some 30 million boys and girls who attend the elementary and secondary schools. Accidental poisoning education can be integrated into their existing curriculum without changing it and be made part of regular school activities.

In the elementary grades safe practices in relation to accidental poisoning should be taught in connection with the use of substances that are obviously or potentially poisonous. In the lower (primary-K-3) grades such teaching should take the form chiefly of "do and don't" instruction. This continues the protective functions of the home with a gradual lessening as the child grows older. In the intermediate (4–6) grades "why and how" relationships become increasingly important. The child wants to know reasons and gradually becomes capable of learning safety skills. At the secondary level (grades 7–12) poisoning and its prevention can be studied in greater detail in connection with those aspects of the curriculum that already touch upon it. Study of the content in health classes, science, home making, industrial and fine arts, as well as other subject areas will reveal many such opportunities. The junior first aid course also offers special opportunities. Dr. Hein stressed that many instructional programs already include emphasis on accidental poisoning and cited examples.

The relatively low fatality rate from accidental poisoning during the school years might suggest less need for instruction within this period. Dr. Hein gave a variety of reasons why this would be illogical, two of which are: (1) the 30 million children in our schools exert a strong influence on the home—their parents, their younger brothers and sisters; and (2) they are the future industrial workers and the prospective parents of the young children who form the major group of victims.

Most of the accidental poisoning of the future will occur in the homes, and to the children of the young people now in secondary schools and colleges. Today we have them in our social studies, health and science, and family life education classes, in home economics and industrial arts—in all of which there are special opportunities to correlate and integrate accidental poisoning information with instruction concerning their role as family members and future parents.

It is essential that not only our educators, but all who are concerned with problems of family health and safety shall visualize our older students as prospective parents. And while we have these parents-of-the-future within direct range of our educational armaments we must alert them to their responsibilities in safety as well as other areas. When

they become actual parents we can reach only part of them and these only indirectly.

Conclusion

From these five discussions accidental poisoning plainly emerges as a home problem primarily, with young children in greatest need of protection. Accessibility of drugs and chemicals in and around the home, and adult carelessness or ignorance are the main predisposing factors.

Control measures already taken include legislation to assure adequate toxicological information and testing, and precautionary labeling of drugs and pesticides. Educational and engineering measures taken include setting standards for safe paint and the formation of poison control centers.

Measures suggested include increasing accidental poisoning prevention activities by official health agencies and educational institutions.

Through the use of existing personnel and regular facilities health agencies were urged to take advantage of many heretofore "missed opportunities" for the detection of poisoning hazards and education of the community.

Education, it was stated, can best fulfill its functions in prevention of accidental poisoning through three basic approaches, including: (1) the prevention of accidental poisoning in adult education programs wherever appropriate; (2) integrating instruction about prevention of accidental poisoning with the school curriculum; and (3) educating prospective parents in the prevention of accidental poisoning, as well as other home accidents.

Contributors to the Symposium on Accidental Poisoning include: Louis F. Garber, M.P.H., chief, Industrial Hygiene Service, State Division of Health, Jefferson City, Mo., "Accidental Poisoning on the Farm;" George M. Wheatley, M.D., M.P.H., F.A.P.H.A., third vice-president, Metropolitan Life Insurance Company, and chairman, Subcommittee on Chemical Poisons of the APHA, "Accidental Poisoning in the Home"; Marion Gleason, Department of Pharmacology and Toxicology, University of Rochester School of Medicine and Dentistry, Rochester, N. Y., "Health Hazards in Home Hobbies"; Ralph K. Longaker, C.E., M.P.H., acting chief, Home Accident Prevention Activities, Division of Sanitary Engineering Services, Public Health Service, Washington, D. C., and Charles M. Cameron, Jr., M.D., M.P.H., chief, Accident Prevention Section, Division of Epidemiology, State Board of Health, Chapel Hill, N. C., "Role of Official Health Agencies in Prevention of Accidental Poisoning"; and Fred V. Hein, Ph.D., F.A.P.H.A., consultant in health and fitness, Bureau of Health Education, American Medical Association, Chicago, Ill., "Responsibilities of Educational Institutions in the Prevention of Accidental Poisoning."

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Differential Mortality in New York State, Exclusive of New York City, by Sex, Age, and Cause of Death, According to Degree of Urbanization

ELIZABETH PARKHURST, Sc.M., F.A.P.H.A.

Among the many influences that induce people to move out of the big city into the surrounding suburbs, and "ex-urbs," is the assumption that living there is healthier. Is the assumption valid? This interesting analysis of recent vital statistics offers an answer.

Life in the country has always been considered more healthful than in the city, and this was emphatically true before the development of modern sanitary science, when cities were thought of as the "graves of mankind." Statistics compiled in modern times have continued to show that mortality is higher in urban than in rural areas, although the differences are not as great as formerly.

Until very recent years the dividing line between urban and rural has been expressed in terms of population size of incorporated communities, incorporated places with a population of 2,500, or more, being considered urban and those below this figure, as well as all unincorporated places, rural. However, with the development of rapid means of transportation and the almost universal use of motor cars, industrial workers no longer have to find homes within the environs of the industry in which they are employed and have been moving farther and farther from cities into areas where they can approximate the mode of life lyrically described by an eighteenth-century writer as being "entirely natural . . . (removed from) the baneful influence of great towns." In response to the rapid growth of suburban communities the Bureau of the Census introduced in the tabulation of the enumeration of 1940 "Metropolitan Districts" in connection with each city of 50,000, or more, each district comprising a central city or cities, and all the adjacent minor civil divisions having a certain density of population. In 1950 the term "urban" was redefined to include all unincorporated areas of 2,500, or more.

It is frequently inconvenient and often impossible to tabulate social and economic data by minor civil divisions, and this is an even greater problem for unincorporated settlements. To facilitate the presentation of such data for metropolitan areas on a uniform basis the Census Bureau, in cooperation with other federal agencies, has established "standard metropolitan areas," each consisting of one or more cities over 50,000 population and one or more contiguous counties. Using this concept, cities and counties can be classified as metropolitan and nonmetropolitan.

New York State, exclusive of New

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York City (hereafter referred to as Upstate New York), contains six standard metropolitan areas wholly within its boundaries and four counties which form part of the New York-Northeastern New Jersey Metropolitan Area. Of the four and one-half million persons residing in these metropolitan areas at the census of 1950, the central cities account roughly for one and one-half million; other cities over 10,000 for one million; and places under 10,000 for two million. In the nonmetropolitan counties 650,000 persons reside in places over 10,000 and one and one-half million in places under 10,000. Thus, while Upstate New York is predominantly industrial, it still has a sizable rural population (Table 1).

This study is based upon the deaths recorded in the three-year period, 1949–1951, allocated to place of residence and population figures of the 1950 census. "Urban" has been defined as including all incorporated places of 10,000, or more, at the 1950 census, instead of places of 2,500, or more, largely to simplify the tabulations. Also, of persons living in places 2,500–10,000, more than half were in metropolitan counties, and more than half of these in the four upstate counties of the New York City Metropolitan Area. There can be little difference between these incorporated villages and the many unincorporated communities of similar size, and it seemed desirable to include them in the metropolitan rural rather than the metropolitan urban area.

The situation is somewhat different in nonmetropolitan counties, where there are many cities and villages of 2,500–10,000 population which have small industries and are quite independent of any large city. However, the total population of these places is small compared with the total population of places under 2,500 and including them in rural does not change the mortality rate of either urban or rural area to any marked extent.

Table 2 shows the average annual death rates by age and sex in the several designated areas. The total rates have been adjusted to a standard population—that of the entire State of New York in 1940—because of the marked differences in the age distribution of the people residing in the several areas.

If one were to take as a fact the common belief that life in the country is more healthful than in the city, one would expect the nonmetropolitan rural to have a lower adjusted death rate than any of the other subdivisions, because it is presumably less "contaminated" by "baneful" city influences than is its

Table 1—Population of Metropolitan and Nonmetropolitan Urban and Rural Areas of New York State, Exclusive of New York City—1950

	Total	Metropolitan	Nonmetropolitan
New York State, exclusive of New York City	6,938,235*	4,501,352	2,325,465
Places over 10,000 (urban)	3,219,518	2,549,671	669,847
Central cities	1,641,206	1,641,206	..
Other cities	1,578,312	908,465	669,847
Places under 10,000 (rural)	3,607,299	1,951,681	1,655,618
2,500–10,000	703,789	372,965	330,824
Under 2,500	2,903,510	1,578,716	1,324,794

* Includes 111,418 inmates of state and federal institutions, which are excluded from the population of the cities and counties in which they are located, and therefore are not included in the totals for metropolitan and nonmetropolitan urban and rural areas. Deaths in these institutions have been allocated to place of usual residence prior to admission.

Table 2—Resident Death Rates per 1,000 Population by Sex and Age in Metropolitan and Nonmetropolitan Urban and Rural Areas of New York State, Exclusive of New York City—1949–1951

		Metropolitan Areas				Nonmetropolitan Areas		
	New York State Exclusive of New York City	Total	Central Cities	Other Places 10,000 and Over	Places Under 10,000	Total	Places 10,000 and Over	Places Under 10,000
Both sexes,								
Total, adjusted *	8.4	8.7	9.4	8.7	8.0	8.5	9.0	8.4
Males								
Total, adjusted *	9.6	10.0	11.0	10.0	9.0	9.7	10.4	9.4
Under 5 years	6.8	6.5	7.4	6.5	5.9	7.3	7.6	7.2
5–14 "	0.7	0.6	0.6	0.5	0.6	0.8	0.7	0.8
15–24 "	1.4	1.3	1.1	1.3	1.4	1.6	1.2	1.7
25–34 "	1.7	1.6	1.7	1.8	1.4	1.9	1.7	2.0
35–44 "	3.6	3.7	4.6	3.7	3.1	3.7	4.0	3.5
45–54 "	9.9	10.3	12.4	9.9	8.8	9.7	11.0	9.2
55–64 "	24.0	25.5	28.5	24.6	22.9	23.1	26.3	21.8
65–74 "	51.4	54.0	57.7	54.9	49.7	51.2	56.4	49.3
75 years and over	123.9	127.5	134.2	131.6	119.8	127.7	127.5	127.8
Females								
Total, adjusted *	7.3	7.5	7.9	7.5	7.0	7.4	7.6	7.3
Under 5 years	5.3	5.0	5.8	4.7	4.6	5.8	5.9	5.8
5–14 "	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4
15–24 "	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.8
25–34 "	1.1	1.1	1.2	1.3	0.9	1.2	1.1	1.2
35–44 "	2.5	2.5	2.8	2.6	2.2	2.6	2.7	2.6
45–54 "	6.1	6.3	6.7	6.4	5.9	6.0	6.3	5.8
55–64 "	14.3	15.0	16.3	15.0	13.7	13.8	14.9	13.4
65–74 "	35.3	36.9	38.4	37.7	34.7	35.3	36.8	34.6
75 years and over	107.6	111.1	115.3	106.0	109.2	112.0	112.0	112.0

* Standardized by direct method to the age distribution of the population of New York State at the census of 1940.

metropolitan counterpart. However, the figures show the opposite, the metropolitan rural having the most favorable mortality. Here, perhaps, we see an approach to "a happy combination of both states—rus in urbe . . . a complete interpenetration of city and country, a complete fusion of their different modes of life, and a combination of the advantages of both," which, in the words of William Farr * spoken almost one hundred years ago, may lead to "the highest attainable health."

* Twenty-Third Annual Report of the Registrar-General of Births, Deaths, and Marriages in England, 1862.

The table also shows that the total death rate was highest in the central cities, and that the total rates for both urban and rural areas outside these cities were higher in the nonmetropolitan than in the metropolitan area.

Although the nonmetropolitan rural area did not have the lowest rate, it is taken as a base in Figure 1 because it is more typical of what is generally conveyed by the term rural than is the metropolitan group of places under 10,000. The chart shows a striking similarity in the pattern of these ratios: lower mortality among young people and marked excess mortality between

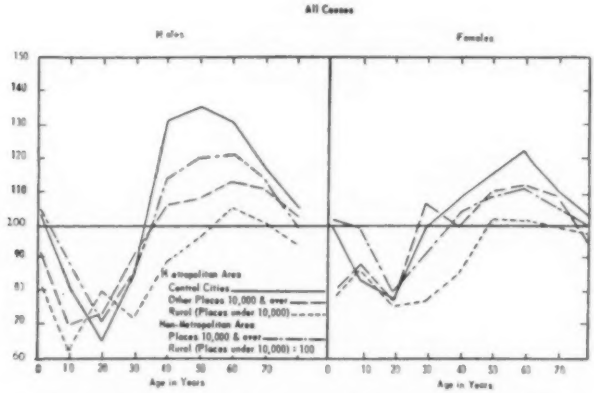

Figure 1—Ratio of Age-Specific Resident Death Rates in Specified Metropolitan and Nonmetropolitan Areas to Those in the Nonmetropolitan Rural Area: New York State, Exclusive of New York City, 1949–1951

35 and 65 years in the cities, the difference being greater for males than for females.

The low ratios between the ages of five and 25 reflect the high death rates from accidents among young persons in the nonmetropolitan rural area, where among males at 5–14 years of age more than half, and at 15–24 years two-thirds, of all deaths were due to accidental causes. If the death rates from all causes other than accidents are compared in the same manner as the death rates from all causes in Figure 1, we have Figure 2 in which the uniformity of the graphs for males between ages five and 35 is destroyed. However, among females the death rate at ages 15–24 is still much higher in the nonmetropolitan rural than in the rest of

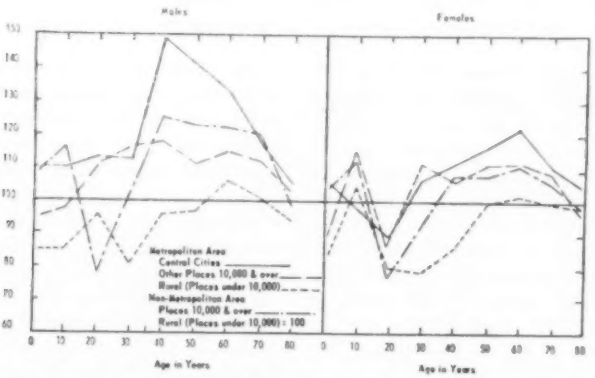

Figure 2—Ratio of Age-Specific Resident Death Rates in Specified Metropolitan and Nonmetropolitan Areas to Those in the Nonmetropolitan Rural Area: New York State, Exclusive of New York City, 1949–1951

the upstate area, for which some explanation must be sought. These are the ages at which many boys and girls leave home—to go to school, to enter the armed services, and to seek employment. In general the migration is out of the rural area into the cities. Those who are ill do not migrate and this produces a higher death rate among those remaining. Also, those away from home are enumerated in the census at their current abodes, but deaths among them would very likely be allocated to the place of residence of their families. These factors make the death rates at these ages for urban and rural areas somewhat inexact. There is evidence from the census of 1950 that the migration of girls from the nonmetropolitan rural was greater than the migration of boys: whereas the ratio of males to 100 females aged 15–24 varied from 87 to 90 in the other four areas, in the nonmetropolitan rural it was 103. The death rate of females would consequently be affected more than that of males.

The relatively low death rates in the metropolitan rural areas probably reflect the high living level of the population suburban to large cities, compared with that of the cities and the truly rural area. Also, a suburb is preeminently the home of the man with a family, and it is a well established fact that the death rates of married persons are lower at all ages than those of the single, the widowed, the divorced, who are more likely to gravitate to large cities.

That there is a factor in urban life operating unfavorably upon the suburban population is suggested by the less favorable position it holds in regard to mortality in middle life. Between the ages of 55 and 75 among males, and 45 and 75 among females, the death rates are actually higher in the metropolitan than in the nonmetropolitan rural.

That the advantages of a high standard of living can be offset by this factor can be seen even more clearly by considering the four counties comprising the New York City suburban area, which are unquestionably more prosperous than the rest of the upstate metropolitan counties. (Two are among the wealthiest in the United States.) Table 3 shows the death rates by age and sex in these four counties and in the rest of the upstate metropolitan area, each divided into places over and under 10,000 population. The death rates of the cities in the New York City area are at practically every age among both sexes lower than in the other metropolitan cities, which is as one would expect. In the rural part they are lower than in the remaining metropolitan rural for children and young people under 25, but after that they are higher. The reason may be related to the fact that the rural part of these counties is less "rural" than the rest of the metropolitan rural areas. At the census of 1950 it was 75 per cent "urban," while outside the cities the rest of the metropolitan area was 46 per cent "urban." Perhaps commuting into New York City is more strenuous than from the suburbs of Albany, Buffalo, or Syracuse, or can it be that the conditions under which people work in New York City, that greatest metropolis of all, are so much less favorable?

Table 4 shows the age-adjusted death rates from selected causes for the metropolitan and nonmetropolitan cities and corresponding rural areas. In general the mortality from every cause, except accidents and suicide, follows the same pattern as that from all causes, with the highest rates in the central cities and the lowest in the rural areas. The suicide rate resembles that of accidents: it is highest in nonmetropolitan rural and lowest in metropolitan cities.

The greatest deviation in this pattern is the greatly accentuated excess mortality in the central cities from tuberculosis, cirrhosis of the liver, and

Table 3—Resident Death Rates per 1,000 Population by Sex and Age in the Urban and Rural Subdivisions of Counties Suburban to New York City, and of the Total of All Other Metropolitan Areas of New York State, Exclusive of New York City—1949–1951

	New York City Metropolitan Area (Part)*		Other Metropolitan Areas		
	Places 10,000 and Over	Places Under 10,000	Central Cities	Other Places 10,000 and Over	Places Under 10,000
Both sexes					
Total, adjusted	8.4	8.2	9.4	9.3	7.9
Males					
Total, adjusted	9.7	9.3	11.0	10.6	8.8
Under 5 years	6.2	5.5	7.4	7.1	6.4
5–14 "	0.6	0.5	0.6	0.5	0.6
15–24 "	1.3	1.2	1.1	1.1	1.5
25–34 "	1.8	1.4	1.7	1.8	1.4
35–44 "	3.5	3.3	4.6	4.2	2.9
45–54 "	9.4	9.1	12.4	11.3	8.4
55–64 "	23.5	24.6	28.5	26.9	21.3
65–74 "	53.9	51.9	57.7	57.0	47.7
75 years and over	129.1	118.7	134.2	137.4	120.6
Females					
Total, adjusted	7.2	7.2	7.9	8.0	6.9
Under 5 years	4.7	4.3	5.8	4.8	4.8
5–14 "	0.4	0.3	0.4	0.5	0.4
15–24 "	0.6	0.6	0.6	0.7	0.6
25–34 "	1.2	1.0	1.2	1.3	0.9
35–44 "	2.6	2.4	2.8	2.7	2.0
45–54 "	6.2	5.9	6.7	7.1	5.8
55–64 "	14.4	14.0	16.3	16.2	13.4
65–74 "	36.5	34.7	38.4	40.6	34.7
75 years and over	103.2	112.4	115.3	113.6	106.4

* Nassau, Rockland, Suffolk, and Westchester Counties.

syphilis. The death rate from tuberculosis was more than twice the rate in the rural area and almost twice the rate in the nonmetropolitan cities. The death rate from cirrhosis of the liver exceeded that in nonmetropolitan rural by 128 per cent, from syphilis by 55 per cent. However, these three causes were responsible for only 5 per cent of all deaths in the central cities and can hardly account for the excessive mortality therein.

The cause with the next greatest differential mortality is arteriosclerotic heart disease, including coronary disease, for which the rate of the central cities is 31 per cent above that of nonmetropolitan rural. However, the death rate from all forms of heart disease was only 23 per cent higher and from all cardiovascular-renal diseases, as a group, only 12 per cent higher, because of lower rates from vascular lesions and nephritis. This suggests the possibility that some of the excess mortality from coronary disease may be due to better diagnosis in the urban medical centers.

Examination of the death rates from arteriosclerotic heart disease, including coronary disease, by sex and age in

Table 4—Age-Adjusted Resident Death Rates per 100,000 Population from Selected Causes, in Metropolitan and Nonmetropolitan Urban and Rural Areas of New York State, Exclusive of New York City—1949–1951

Causes of Death	Metropolitan Areas			Nonmetropolitan Areas	
	Central Cities	Other Places 10,000 and Over	Places Under 10,000	Places 10,000 and Over	Places Under 10,000
All causes	944.7	869.6	803.6	896.9	835.8
Tuberculosis (all forms) 001–019	29.3	17.6	12.4	15.4	12.3
Syphilis and its sequelae 020–029	4.8	3.0	2.4	3.9	3.1
Malignant neoplasms 140–205	155.3	160.4	139.7	146.0	127.7
Cardiovascular-renal diseases 330–334, 400–468, 592–594	538.7	486.6	458.3	511.1	466.8
Vascular lesions affecting central nervous system 330–334	89.2	76.5	79.4	98.6	90.6
Diseases of the heart 410–443	402.4	367.4	337.0	360.9	326.1
Rheumatic fever and chronic rheumatic heart disease 400–402, 410–416	16.9	17.4	15.3	15.7	13.7
Arteriosclerotic heart disease, including coronary disease 420	276.2	251.1	232.7	246.8	211.4
Hypertension with heart disease 440–443	43.4	48.6	40.5	39.1	36.7
Hypertension without mention of heart disease 444–447	7.6	8.7	7.4	9.2	8.3
Diseases of the arteries 450–456	23.6	18.8	21.0	25.8	23.3
Nephritis, chronic and unspecified 592–594	11.6	11.4	10.4	12.8	15.0
Diabetes mellitus 260	18.3	16.2	14.3	17.1	15.5
Pneumonia 490–493	20.0	17.0	14.7	15.8	15.6
Cirrhosis of liver 581	14.6	14.1	9.0	9.6	6.4
Accidents 800–962	44.0	43.9	48.6	51.4	63.8
Motor vehicle 810–835	15.2	13.6	21.1	21.2	28.8
Others	28.8	30.3	27.5	30.2	35.0
Suicide 963, 970–979	10.4	10.1	12.7	11.1	14.8

each of the metropolitan and nonmetropolitan urban and rural subdivisions, shows that the excess mortality in all areas compared with the nonmetropolitan rural is as great for females as for males. This is not true for any other cause shown in Table 4.

In summary, the large cities appear to have evolved an environment into which children are born and grow up at no disadvantage, and even at some advantage, to their rural cousins. The mortality experience of the adult population, however, is far less favorable in the cities than in the rural areas, and more so in the metropolitan central cities than in the nonmetropolitan cities.

The metropolitan rural, enjoying many of the advantages of both city and rural life, and a relatively high standard of living, has the lowest total death rate among the several sectors of the population. By middle age, however, these advantages are offset by negative factors related in some way to the urban aspects of suburban living.

Genetic and Epidemiologic Studies in Cholesterol Metabolism: Contributions of a Prepaid Medical Care Program

LOUIS E. SCHAEFER, M.D., and DAVID ADLERSBERG, M.D.

The genetic and epidemiologic factors involved in hypercholesteremia, and their possible relationship to coronary artery disease, are receiving increasing attention. A preliminary report upon an investigation of these factors among a group of "normal" persons insured in a prepaid medical care plan is presented here.

There has been a marked increase in the current medical literature in publications concerned with research and treatment of genetically transmitted diseases. Two methods are commonly employed in studying genetics in man. The first of these is through the investigation of families in either selected or unselected populations, the so-called pedigree method. In the second method identical twins are compared with fraternal twins and information about the presence of an hereditary influence may be obtained, although usually the material is quantitatively inconclusive.[1]

The organizational setup of a medical care plan in which comprehensive care is available to entire families provides an excellent field for utilizing both the pedigree and twin methods. Such a fertile territory exists in the populations served by the medical groups affiliated with the Health Insurance Plan of Greater New York. In this particular plan families, consisting of parents and all children up to the age of 18 years, are enrolled and cared for as a unit. The administrative and clinical records of the entire family are centralized in the offices of the medical group that the family has selected. Studies of either a laboratory or of a clinical nature are easily performed within the framework of the subscriber's ordinary relationship with his physicians and an entire segment of a virtually unselected population can be investigated for the occurrence of a suspected inherited trait.

In carrying out such a study, two factors of practical importance have been noted. The first is that the relatives of the insured families, who are not themselves insured but who frequently must be studied in order to complete the investigation, are surprisingly cooperative in allowing themselves to be questioned and examined. The second is that the Health Insurance Plan during the first eight years of operation has shown its population to remain relatively stable. Thus, the families lend themselves to studies on a longitudinal basis, repeatable year after year.

A problem in clinical genetics has been under investigation for the past three years in the population served by the Staten Island Medical Group, which provides comprehensive medical care to more than 17,000 persons in the Borough of Richmond of the City of New York.

Prior to the Staten Island study, which will be described subsequently, the incidence of idiopathic hypercholesteremia was estimated in the population of the Mount Sinai Hospital in New York City. Five hundred persons, 250 men and 250 women, consecutive admissions to the medical wards of the hos-

pital, and 59 families of these persons were studied. Twelve per cent of the 500 probands (index cases) were found to be hypercholesteremic; the frequency of hypercholesteremia among the siblings of the hypercholesteremic probands was 36.2 per cent, and among the children 34.0 per cent. It was concluded from this study that it could be assumed that hypercholesteremia in the families of hypercholesteremic probands was determined by a dominant gene with incomplete penetrance.[2]

It was felt, however, that an investigation of a metabolic disorder of this type, occurring as it does in an otherwise healthy individual, should be properly carried out in family groups representative of the general population, rather than among families whose index cases were hospitalized bed patients.

Accordingly, apparently healthy families were taken at random from among the HIP subscribers of the Staten Island Medical Group, as they appeared for their annual physical examinations. The data are not yet complete, but at present, consist of 119 families in which serum lipids have been determined for both parents and for one or more children. Whereas in the Mount Sinai Hospital study it was found that approximately 35 per cent of the siblings and children of the hypercholesteremic probands were themselves hypercholesteremic, in the present sample the frequency of hypercholesteremia among children in families where one parent is affected is only 13.5 per cent.

A major difference between the two studies is that in the hospital sample 93 per cent of the children were older than 18 years; while in the Staten Island sample 96 per cent are less than 18 years of age. If, as had been previously postulated, the tendency to idiopathic hypercholesteremia is due to a dominant gene with incomplete penetrance, we must assume from the Staten Island findings that penetrance of the gene increases with age. This is not an unprecedented assumption. The phenomenon is known to occur in such hereditary diseases as diabetes and psoriasis.[3]

During the course of the family survey on Staten Island more than 1,200 healthy males and females between the ages of two and 77 were examined and their sera analyzed for total and esterified cholesterol and for phospholipids. It was found that the total serum cholesterol of the males decreased slightly from age two through 19 at an average of 0.2 mgm per 100 ml per year. From age 20 through 33, however, there was a statistically significant increase of total cholesterol, averaging 3.8 mgm per 100 ml per year. Thereafter, until age 50, there was no further change. After age 50 the number of subjects was too small for adequate analysis.

The total serum cholesterol of the females decreased an average of 2.3 mgm per 100 ml annually from age two through 13, and 2.0 mgm from age 14 through 20. These figures suggest a pattern of gradual but consistent rate of fall of total serum cholesterol in the female, from age two through 20. From age 20 through 32 there was an even smaller decrease, amounting to 0.7 mgm per 100 ml per year. From age 33 through 58 a statistically significant rate of increase occurred and equalled 3.1 mgm per 100 ml per year [4] (Table 1).

The differences in the changes of cholesterol levels with age between males

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Table 1—Average Annual Change of Serum Cholesterol (Staten Island Survey)

Age Interval	^bYX *	P †
	Males	
2–13	−0.2016	>0.10
2–19	−0.2167	>0.20
20–33	3.8313	$0.05>P>0.01$
34–50	−0.0336	>0.20
	Females	
2–13	−2.2826	>0.05
14–20	−1.9563	>0.20
21–32	−0.738	>0.20
33–58	3.114	<0.001

* Average annual change of total serum cholesterol in mg/100 ml.

† Probability that the true value of the average annual change may be zero.

and females are worthy of note. The males remained constant through age 19, increased rapidly through age 33, and then leveled off without further change. The females decreased moderately through age 20, decreased slightly for another 12 years, then increased rapidly from age 33 through 58. Thus, the period of increase of serum cholesterol which seemed to occur physiologically in both sexes started in females 13 years later than in males and lasted 12 years longer.

Correlation of the free cholesterol: esterified cholesterol ratios did not reveal significant changes in the sexes and in the various age groups. The cholesterol:phospholipid ratio appeared to be a simple function of the change of serum cholesterol with age.

Various population groups have been previously studied chiefly in relation to the concentration of serum cholestrol.[5-8] More recently, extensive studies were performed by Keys and co-workers,[9] McMahon, et al.,[10] and Boas and Epstein.[11-14] Keys extended his studies to England, southern Italy, and Spain.[15-16] Oliver and Boyd[17] studied plasma cholesterol, phospholipids, and alpha- and beta-lipoproteins in Scotland. Walker and Arvidsson[18] investigated the age trend of serum cholesterol in the South African Bantu.

A study of these data reveals marked differences in the levels of serum cholesterol, cholesterol:phospholipid ratios, and the alpha- and beta-lipoproteins among the various groups in certain populations. The high incidence of malnutrition, liver diseases, and parasitic infestation in the Bantu, for example, may affect their serum lipids. It appears that each survey of serum lipid levels is valid for the individual population only and that genetic, geographic, cultural, economic, and social differences might be responsible for the variations. A definitive evaluation of any of these factors is not possible at present.

It is well established that the incidence of coronary atherosclerosis is much more common in males than in females until about age 50, after which the incidence in females begins to increase. Whereas men have the disease 10 times as frequently as women during the fourth decade of life, they suffer from it only twice as frequently in the seventh decade.[17]

The demonstration of differences between males and females in the concentration of macromolecules of the ultracentrifuged plasma; differences in the distribution of cholesterol in the alpha- and beta-lipoprotein fractions; or differences in the thickness of the intima of the coronary arteries in the male and female newborn have all been given as possible explanations for the striking difference in incidence between the sexes. It may be postulated from the Staten Island data that the large annual increments in average serum cholesterol levels in men, starting at age 20, result in changes which play a part in producing the high frequency of coronary artery disease in males in the younger

decades; and that the later trend toward a higher incidence of the disease in females in the older age groups may be related to the same phenomenon occurring in women, but starting 13 years later and lasting 12 years longer.

Proof of this hypothesis would require a longitudinal study for a number of years in order to observe the frequency of coronary artery disease in males and females whose cholesterol levels had been observed carefully through the critical decades. Because of the stability of this insured population, as previously noted, these families will lend themselves particularly well to such a study.

The Staten Island investigations will be continued and broadened for herein had been found an opportunity to integrate genetic and epidemiologic research with the clinical practice of medicine. The methods used embodied technics ordinarily employed by the internist in his daily practice. Problems in these fields were outlined and investigated without exploitation of, or inconvenience to, the patient. It may be that the accessibility to data of this nature, apart from the socioeconomic aspects of prepaid medical care plans, may eventually represent a contribution to medical research.

Summary

1. A comprehensive medical care program offers almost ideal conditions for the study of genetic and epidemiologic problems in medicine.

2. A survey of a healthy population in Staten Island, N. Y., has been made in order to establish the incidence of idiopathic hypercholesteremia, an inherited metabolic defect.

3. This study also provided interesting data in regard to serum lipid levels of a normal population, particularly in relation to age and sex.

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Cooperative Planning at the State Level for School Health Education

JEFF FARRIS

Teamwork plays an ever-more important role in the broadening community health administrative program. For that reason accounts of successful, productive teamwork, in any area of public health, become of interest to all.

Cooperative planning for better school health had its beginning as a state activity in Arkansas about 1947. The usual efforts of the various agencies, of course, had been going on, but there was little of an organized nature in this specific direction.

To give credit where credit is due the inspiration for the concerted move probably came from the Southern States Work Conference at Daytona Beach, Fla. In the summer of 1947 several people from the State Departments of Health and Education and one of the teachers colleges, together with a few superintendents of public school systems, attended this conference. During the course of the week's meetings they decided to go home and see if something could be done to improve a school health program that desperately needed improving. Representatives from these three agencies met with three of the superintendents of public school systems who had also been in attendance to get the plan under way. It was agreed to establish pilot programs of school health in the systems headed by the three superintendents. With the aim to do the best possible job of school health under existing conditions, each school planned to explore the local available resources, both human and material, for use in the program. The local district was to request from the state agencies whatever assistance they needed, and these agencies would then make whatever contribution they could.

This approach did several things which have been found useful in our plan in Arkansas to help local school districts to help themselves. In the first place it helped the local district to discover resources available to them and these proved to be considerably more than had been expected. It also gave them the experience of facing up to the actual health status of their own schools. In the second place the teachers college representatives, and those from the State Department of Health and the State Department of Education had to sit down together and pool their resources in order to act on the requests. They found that, in some instances, they had duplicate services and materials and in other areas services and materials did not exist.

In our state, as in most, there is a shortage of available personnel. This first year of exploration was such a challenging experience to all concerned that it was decided to hold a two week's summer workshop for personnel from the state groups and the key teachers in the three school systems to decide what, if anything, had been accomplished and to plan for future action. This group, with a few superintendents of schools who were petitioning the group to include their systems in the pilot group should it be continued, met in the summer of 1948. It is significant that the workshop has been held

in the same place and for the same length of time each summer since. About one thousand people have participated.

From the second workshop came, perhaps, the most important single thing from the total effort. Some kind of a permanent committee with the function of improving school health seemed advisable. It should be pointed out that Arkansas has no special supervisory agency in health and physical education. The 1949 workshop formally recommended to the commissioners of education and health that they, jointly, establish such a body. They agreed and the Joint Coordinating Committee for Promoting School Health Education was formed. Each agency has equal representation (numerically speaking at least) on the committee and the State Medical and Dental Societies each have official representation. A chairman and secretary are elected annually. By common consent these people are from the State Department of Education one year and from the State Department of Health the next. Many states have such a committee, some of which function and some do not. Ours in Arkansas does. The Joint Committee now has a subcommittee charged with each of the various areas of school health. The school health programs in our state are not what we want them to be, of course, but they are far ahead of what they were 10 years ago and are still making progress.

If this paper has any unique contribution to make to a meeting on school health, it will probably be with regard to the reason our joint planning has, for the most part, been successful in Arkansas. I do not know whether anyone really knows the complete answer or not, but there are some observations which do have bearing. Our cooperation was born of necessity. Special agencies for school health in our state government do not exist. Cooperative efforts, drawing on every possible resource, financial, educational, and professional and civic, had to do the job. Then, the problem of vested interests has not as yet "reared its ugly head." Whatever any agency had that was needed by the school children was made available if possible—no strings attached. Personnel were exchanged between the various agencies when special talents were needed to do a job. Where one agency might supply some money another, lacking the money, might supply available personnel, transportation, or materials. Still another thing which might, also, be said to have been born of necessity is that the school health program never has been assigned to any one man, one group, or agency. It has not been set aside to be done by anyone alone. Strangely enough the old saying, "What is everybody's business is nobody's business," has not prevailed. Our school health program is, fortunately, almost everybody's business and a great many people are working diligently at the job—the Joint Committee is the coordinating and activating agency. Last to be mentioned is the personal philosophy of the key people in the state departments who are involved. They have never once lost sight of the fact that the health of the school child is first in importance in school affairs and that nothing must stand in the way of doing the best possible in this respect. State Department of Health personnel, State Department of Education supervisors, and personnel from colleges and civic groups have given willingly of their time and talents to improve school health programs. This is a real working principle of the co-

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operative planning and it is getting results.

Probably, because of our approach to improving school health, we have been able to involve practically every state group with any contribution at all to make in the over-all program. Some groups have, of course, been more active than others. It heartened us to know how many different groups, organizations, and agencies not only had assistance to give but were willing to give it. The State Department of Education, by virtue of its responsibility for the total school program, naturally exerted fine leadership in the plan. The State Board of Health has been able to furnish finances for the nine workshops, personnel in the area of health services, healthful school living, health instruction, and in public relations. Some teacher training institutions have furnished assistance in the instructional area and in furnishing staff personnel. While these agencies have, to a large extent, "carried the ball," many others have helped. Among these are the Parent Teachers Associations, Arkansas Education Association, University of Arkansas Medical Center, Crippled Children's Division of the State Department of Public Welfare, Lions Clubs, and other civic groups, county health departments, and most of the voluntary agencies on the state and local level.

Growing out of the evaluation of the 1948–1949 school year was a realization that, if health programs were to become a vital part of the school program, then they should in some way be reflected in the school rating by the State Department of Education. The Joint Committee recommended to the State Board of Education that certain standards be established for this purpose and in response the board unanimously adopted the standards we now use for this purpose which were evolved at the summer workshop of 1951.

Much has been accomplished in our state in school health since 1947, and cooperative planning has been wholly, or in part, responsible for most of it. We now have part-time health coordinators in most of our public schools, five publications dealing with school health have been prepared and supplied to schools, a section for school health coordinators now has been established in the Arkansas Education Association program, and additional personnel have been either employed or reassigned in both state departments to strengthen the work in school health.

Our path has not been smooth all the way. Our problems have been about the same as one would find anywhere. We think we have found the answer to some of them and we know that some are still unanswered. We are witnessing a new awakening on the part of the local school administrators. The state school superintendents and the county school administrators have formally endorsed the efforts in school health and we now have an advisory committee of administrators in both organizations which quite actively assist the Joint Committee in the many facets of its program.

We have found a willingness on the part of all to help. Our Joint Committee has furnished the leadership and we in it have found our reward in satisfaction for the job done.

Pure Foods—Safe Drugs: The Food and Drug Administration's Role in Public Health

GLENN G. SLOCUM, Ph.D., F.A.P.H.A.

This brief description of a very extensive safeguard ends with a plea for the support of the entire public health profession in the great task for which it is inadequately staffed to perform. The justification for the plea will be clear to the reader.

June 30, 1956, marked the 50th anniversary of the passage of the first national food and drug law, enacted in 1906. It is increasingly apparent that the vast proportion of the lay public and, most unfortunately, many of those in public health professions, know comparatively little about their Food and Drug Administration. A better understanding by public health workers generally of the scope and objectives of enforcement activities under the Federal Food, Drug, and Cosmetic Act will lead to more effective teamwork toward our common objective, a better public health. Informed, alert individuals in many areas of public health effort may be the source of intelligence which will serve to prevent or minimize danger to the public at large from adulterated or misbranded foods, drugs, cosmetics, and therapeutic devices.

The act is basically a statute to protect the public health, but it is also a law which requires proper sanitation and decency in the handling of foods and drugs. It is designed to prevent cheating of consumers through the sale of substandard or dishonestly labeled products and, in an important sense, it is also a fair competition law. All products regulated under the act have a relation to the health of consumers in one way or another.

Health Programs on Foods

The law prohibits traffic in food: (1) that contains poisonous or deleterious substances which may render it injurious to health; (2) if it consists in whole or in part, of any filthy, putrid, or decomposed substance; (3) if it has been prepared, packed, or held under insanitary conditions whereby it may become contaminated with filth or may be rendered injurious to health; (4) if it is, in whole or in part, the product of a diseased animal or one that has died otherwise than by slaughter; or (5) if the container is composed of any poisonous or deleterious substance which may render the contents injurious to health. The health implications of these requirements are clear. In terms of direct health hazards they are concerned with the prevention of food-borne infections and intoxications, prevention of the use of poisonous or deleterious ingredients whether added directly in food processing, indirectly as residues of pesticidal agents, or by accident. The sanitation requirements of the law, though stated legally in terms of contamination with filth and decomposition, also bear importantly upon the public health. Contamination of foods by food handlers, by rodents, by flies, or other insects, as revealed by sanitary inspection or labo-

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ratory examination, often involves real or potential hazards to health.

In the food field it is pertinent to mention briefly other programs which affect the public health and are of special interest to nutritionists. The programs under the food standards section of the law provide for enrichment of certain staple foods to improve their nutritional value. A program on special dietary foods is designed to insure proper and adequate labeling of these foods to protect the health of diabetics, hypertensives, and others with special dietary requirements. An important activity in this area concerns the promises of benefit by health foods made by the "health lecturer" and the door-to-door salesman. Health foods or food supplements, usually properly labeled, are frequently represented by word of mouth as useful in the treatment and cure of nearly every disease known to man. The danger lies not in the direct use of the product, but in the substitution of this use for proper medical care when disease is present.

Health Programs on Drugs and Devices

The relationship of drugs to health is direct and obvious. The law requires them to be pure, fully potent, and labeled with adequate directions for safe and effective use. It prohibits false and misleading claims on drugs which may lead the public to rely upon ineffective products rather than to seek competent medical care. The safety of new drugs must be established before distribution to the public. Predistribution testing and certification by the FDA of insulin and certain antibiotic drugs and, incidentally, of certified food colors, is basically designed to protect the public health. An important aspect of drug law enforcement of current interest concerns the illegal sale of prescription drugs. Barbiturates, amphetamines, sulfonamides, sex hormones, abortificients, and many other drugs, which can be used safely or effectively only under the direction of a physician, may cause direct injury or death when used improperly or to excess. Therapeutic devices must be labeled for their safe and effective use in treating diseases for which they are recommended. Some of these devices as well as drugs involve outright quackery with grave consequences to public health. Cosmetics are also required to be made from ingredients that are safe for use on the human body.

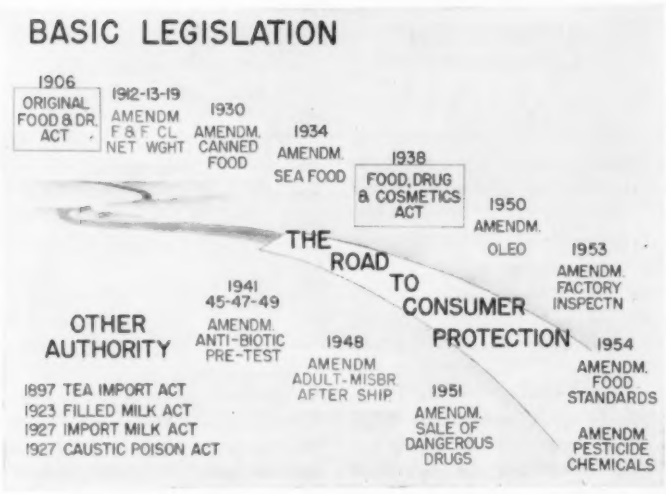
This, in broad strokes outlines the responsibilities of the FDA in health protection.

The Food and Drug Administration

The FDA, an agency of the U. S. Department of Health, Education, and Welfare, is charged with the enforcement of the Food, Drug, and Cosmetic Act of 1938 as amended, and four other laws as indicated in Figure 1. This chart shows how the enforcement responsibilities of the FDA have been substantially increased since 1938. These have been further increased by three important trends: (1) growth of population and in volume of goods regulated; (2) the rapid developments in food and drug technology; and (3) a continuing shift in consumer buying to factory-processed articles instead of those prepared in the home or local pharmacy. The products regulated have an annual commercial value in excess of $60 billion. The cost of the enforcement program is slightly less than three and a half cents per capita.

The organizational pattern of the FDA is shown in Figure 2. The headquarters administrative staff and technical scientific specialists are stationed in Washington, D. C. Eight technical divisions deal with the more difficult problems of analysis and develop information needed for enforcement opera-

Figure 1



tions or for the development of administrative policy. About two-thirds of the employees are located in 16 districts with headquarters in principal cities throughout the country. Of these, some 200 are inspectors and about 150 are laboratory scientists who carry out a large part of the regulatory operations.

Another indication of the total enforcement responsibility is illustrated in Figure 3 which shows the number of establishments (96,000) engaged in the manufacture and distribution of regulated products. In addition, the act deals to some extent with 55,800 drug stores and 525,000 public eating places. The FDA also has the responsibility of inspecting the foods, drugs, and cosmetics imported from abroad valued at some $3 billion annually.

Figure 2

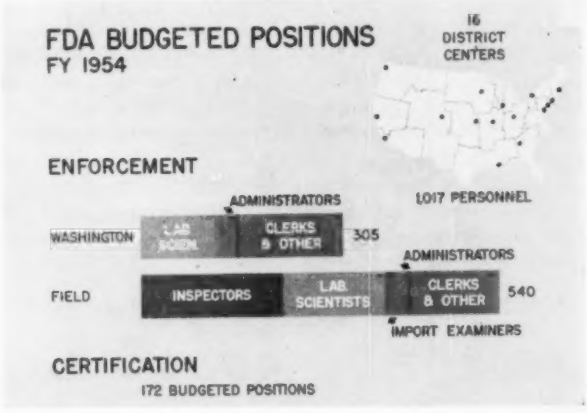
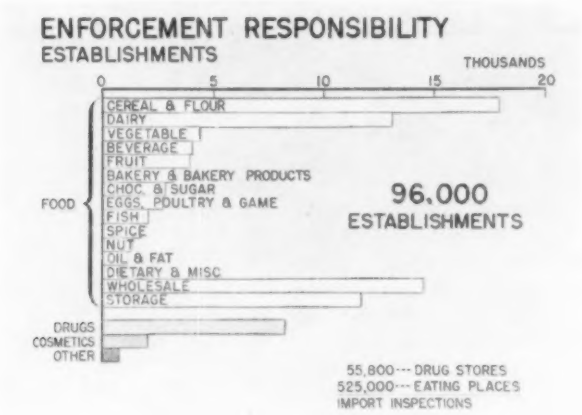
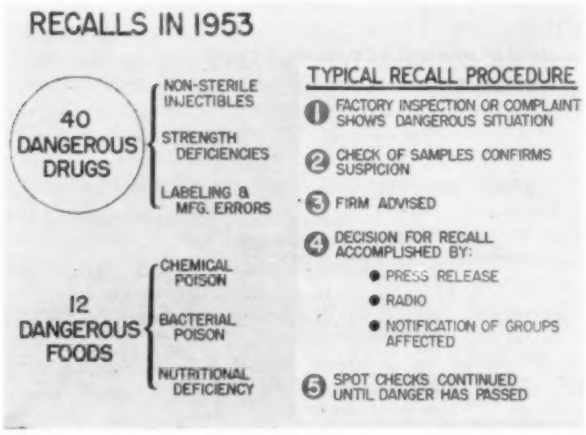


Figure 3



To secure the utmost protection to consumers requires that the limited facilities of the FDA be utilized on a carefully planned basis. Violations involving hazards to health, such as contamination of foods with dangerous microorganisms or poisonous chemicals, incorrectly labeled drugs, and dangerous therapeutic devices are given first priority. Next in importance are those violations involving the packing of foods and drugs under insanitary conditions and the use of contaminated or spoiled raw materials in manufactured products. In the third category are the economic cheats, such as short weight products, the sale of horse meat as beef, the watering of oysters, and noncompliance with food standards. These can receive little attention with our present facilities. Under these categories 61 per cent of the time of our personnel was devoted to foods last year, 35 per cent to drugs, and the small remainder to cosmetics,

Figure 4



colors, and other miscellaneous products.

In 1953, 40 dangerous drugs and 12 dangerous foods were recalled from the market to protect the public health (Figure 4). Most of the drugs were parenteral solutions or injections contaminated with viable microoganisms, some were medications used in the treatment of serious diseases which did not have their claimed strength, and in a few instances the product bore the wrong labels.

The food recalls included not only chemical and bacterial food poisoning but a nutritional deficiency. When 66 students became ill after eating imitation grape jelly investigation revealed the presence of a fluoride contaminant and nine tons of the jelly were recalled by the manufacturer. A baby food product associated with salmonellosis in a number of infants was found to contain the same Salmonella type isolated from many of the cases and was removed from the market. Nutritional deficiency also involved an infant food product formulated as a substitute for mother's milk. Investigation revealed the cause to be a deficiency of vitamin B_6 and focused attention on the need for further study of the adequacy of ready-to-use infant formulas. The steps of the typical recall procedure are also outlined in Figure 4.

Seventy-five tons of filthy or decomposed food were seized each week and removed from trade channels in 1955. Examples are flour stored in an insanitary place where it became contaminated with rodent filth and infested with insects, cheese which had been gnawed and defiled by rodents, and tomatoes for use in the manufacture of tomato products infested with fly eggs and maggots or partially rotted by molds. Jurisdiction of the act starts at the time products are offered for shipment and continues while they are held for sale after shipment in interstate commerce.

With the facilities and personnel available to the FDA in 1953, 9 per cent of the 96,000 establishments were inspected so that on the average it would require 11 years for complete coverage with the facilities available. Ten per cent of the lots of imported products were inspected at the time of entry. Eighteen per cent of the samples of domestic products and 16 per cent of the imported products were found so seriously in violation as to warrant legal action in the federal courts or as to require detention at ports of entry. During the next two years appropriations were reduced and some projects had to be drastically curtailed. After a thorough study in the spring of 1955 a committee of citizens—leaders in many walks of life—recommended a substantial increase in staff and equipment to permit more adequate coverage.

Protection of the public health under the Food, Drug, and Cosmetic Act results directly from law enforcement, from educational work, and from the certification services performed. The educational work of the FDA is an important aspect of the program to protect the public health. The great majority of the firms subject to the Food, Drug, and Cosmetic Act are honest and reliable. If they know what the law requires, they will voluntarily meet its terms.

Pure foods and safe drugs, the total objective of the FDA, intimately concern the health of every citizen of this country every day of every year. The support of the public health profession in the accomplishment of this FDA objective is earnestly solicited.

The Drift Hypothesis and Socioeconomic Differentials in Schizophrenia

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Among all the chronic conditions the mental diseases are the most numerous and socially the costliest. Of them, schizophrenia is the most common. A study reported here throws some light on this baffling disease.

Schizophrenia, the most common of all psychoses, is a major chronic disease which strikes its victims in their formative or productive years, causing serious functional disability lasting months, years, or often an entire lifetime. Although the actual occurrence of schizophrenia in the population is unknown, the magnitude of the problem posed by this disorder may be gauged by the fact that at least half the beds in mental hospitals—or a quarter of the beds in all hospitals in the United States—are occupied by patients diagnosed as schizophrenic.

Research on the etiology of schizophrenia has not yet revealed the causes or conditions responsible for the disease. Investigations have for the most part been based on two etiologic hypotheses, the somatogenic and psychogenic. Neither of these approaches has been fully validated and therapy based on them has met with inconsistent success.

The proponents of the somatogenic hypothesis hold that schizophrenia is related to abnormalities in the structure or function of the nervous system, specifically the brain, in which are manifested disturbances in the normal anatomical, biochemical, physiologic, or electrical relationships, thereby producing the characteristic symptomatology of schizophrenia. These disturbances are held to be genetic or acquired according to the persuasion of the investigator.[1] Within recent years experimenters have succeeded in producing schizophrenia-like symptoms in normal subjects by the use of specific drugs.[2] Therapy based on the somatic hypothesis is no longer new; electro- and drug-convulsive technics are now supplemented by tranquilizing drugs. These, however, are only partially effective; there is need for further elucidation of the precise pathologic mechanisms of schizophrenia and a specific means of effecting cure and control of this disease.

The psychogenic hypothesis maintains that schizophrenia is caused by destructive life experiences of the individual. For the most part studies based on the psychogenic viewpoint have been limited to the investigation of relationships within the immediate family, and therapy has consequently been directed toward the development of insight into and amelioration of these relationships. Validation of the theories incriminating family relationships awaits the development of studies using adequate samples and controls, and designed to exclude interviewer bias.

A somewhat broader interpretation of the psychogenic theory has emphasized the effects of social conditions and pressures upon the individual. This approach is based largely upon the findings in various studies that hospitalized schizophrenic patients tend to come in a significantly greater proportion from those areas of a city which are characterized by poor social and economic

conditions. Faris and Dunham [3] found this to be true in Chicago, Gerard and Houston [4] in Worcester, Hollingshead and Redlich [5] in New Haven, and other investigators in St. Louis, Milwaukee, Kansas City, Peoria, and Omaha.[6]

The finding of a disproportionate rate of schizophrenia in low-income groups is further supported by studies of nonhospitalized populations. The survey by Hollingshead and Redlich [5] included not only hospitalized patients, but all persons from New Haven receiving psychiatric care, yet a disproportionate number of schizophrenics still came from the lowest class position in the city. An even more significant investigation by Hyde and Kingsley [7] broke the barriers of "case" studies in concerning itself with the broad population of those examined for Selective Service in the Boston district. They found three times as much psychosis (schizophrenia being the preponderant diagnosis in the selectee age group) in individuals from the slum areas as in those from the suburban residential sections. This evidence is given even more weight through the exclusion from examination of individuals hospitalized or having a history of hospitalization for mental illness.

The evidence presented in these studies seems to indicate that schizophrenia is a disease of the poor rather than the well-to-do and offers a meaningful clue for further research. Several hypotheses may be advanced in explanation of the differences found: (1) that the conditions of living in poor neighborhoods contribute to the development of schizophrenia; (2) that preferential diagnostic and hospitalization practices tend to protect the patient in the higher social classes from the diagnosis of schizophrenia, hence creating an artifact expressed in the different rates; (3) that genetic factors, operating over several generations, cause a piling up in the depressed areas of schizophrenics who are unable to muster enough skills and resources to improve their social conditions; and (4) that under the handicap of schizophrenia the individual gradually deteriorates in social standards and earning capacity, eventually drifting from an adequate status to a degraded one.

It is the last hypothesis that "social drift" or "downward social mobility" accounts for the disproportionately high rate of schizophrenia among the low-income population which is the concern of this paper.

Faris and Dunham [3] in their pioneer study of Chicago devoted little argument to the "drift" hypothesis. They disposed of the question through their finding that the younger patients, who had not had a chance to drift from the better sections of the city, had as much likelihood as older patients of being located in the deteriorated areas. Hollingshead and Redlich [8] demonstrated that the parents of schizophrenics had not been located in higher social classes than the patients. Furthermore, Hollingshead and Redlich [9] pointed out that a selected group of 25 schizophrenics showed either a greater upward mobility than or no different mobility from a control group.

On the other hand, Gerard and Houston [4] found that the concentration of schizophrenics in poorer areas of Worcester was due to a large number of single people who had recently migrated to the city. They found that the distribution of schizophrenics who lived in a family setting did not show a concentration in low socioeconomic areas, and concluded that social mobility was pri-

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marily responsible for the higher schizophrenia rates in these sections.

The present study is an attempt to clarify certain aspects of the effect of "social drift" on the distribution of schizophrenia in an urban area. The study is concerned (1) with determining whether the ecologic distribution of schizophrenics at the time of first admission to a hospital is different from their distribution at some prior time; and (2) with ascertaining whether or not a control group matched with a selected group of schizophrenics shows the same changes in ecologic distribution over the same period of time.

Method

All patients with a diagnosis of schizophrenia on first admission from a Buffalo address to the two state hospitals in the Buffalo area between January 1, 1949, and December 31, 1951, were included in the study. The study was limited to state hospitals because there were very few first admissions for schizophrenia to Veterans Administration hospitals from Buffalo and there are no private hospitals in the area. During the three-year period there were 587 first admissions to state hospitals from Buffalo who were diagnosed as schizophrenic.

Information about each patient was obtained from the state hospital records, including address at time of admission, age, sex, occupation, living arrangement, marital status, and birthplace.

The economic status of the patients' residences was determined as follows: the city of Buffalo is census tracted, and for each census year since 1930 (i.e., 1930, 1940, and 1950) the census tracts were ranked according to median monthly rental. The census tracts were then divided into four equal groups—equal on the basis of population for the census year considered. Thus, census tracts in Economic Quartile I had the highest median monthly rentals and those in Economic Quartile IV the lowest. A census tract in a particular quartile one year could shift to another quartile in another census year, although there were relatively few such changes.

The census tracts in which the patients resided at time of admission were determined from address information in hospital records. Patients' previous addresses were traced through the use of the Buffalo City Directories, county hospital records and birth certificates, and the census tracts in which the patients resided at the earliest time to which they were traced were ascertained. Since Buffalo was first census tracted in 1930, addresses found for a date before 1925 were not used in the analysis; it was felt that addresses before this date could not be accurately categorized in terms of economic status.

The group of 138 white male schizophrenics traced back to 1925–1930 was used for a control study, since it was possible to obtain a matched control for most of them by means of the records of the 1925 New York State Census. For 24 patients a control could not be found because the 1925 address of the patient was not located in the census records. For 114 patients controls were matched on age, sex, and location in 1925–1930. The schizophrenic's address was first located in the census records; then three persons of the same age and sex listed near this address were selected. By means of the Buffalo City Directories an attempt was made to trace to 1950 the control located nearest the matched schizophrenic. If the nearest control could not be traced to 1950, the second nearest control was used. If he, in turn, could not be traced to 1950, the third nearest was used. For 25 patients there was no success in tracing any of the three controls. Thus, of the 138 schizophrenics for whom controls were originally sought, 89 or 64.5 per cent

Table 1—Distribution and Annual Age-Adjusted Rates per 100,000 of First Admission Schizophrenics in Economic Quartiles, by Race and Sex (Buffalo, 1949–1951)

Economic Quartile	White				Nonwhite			
	Male *		Female †		Male		Female	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
I	39	20.8	62	27.9	1		2	
II	46	22.8	51	23.1				
III	68	35.6	80	39.6	29	84.0	24	68.4
IV	77	39.7	68	36.8	8	34.8	18	69.6
N. A.	11		3					
Total	241	31.1	264	31.5	38	62.1	44	68.7

* Chi-square test significant at 0.001 level.
† Chi-square test significant at 0.01 level.

were actually used in the control study. The economic quartiles of the controls were determined in the same way as for the schizophrenics.

Results

Table 1 shows the annual rates per 100,000 population for schizophrenics in the four economic quartiles at time of admission. It will be noted that for white males the rates are lowest in Quartile I and show a regular increase to Quartile IV. The white female rates are much higher in Quartiles III and IV than in I and II, but do not show the steplike progression noted for white males. The over-all differences between

Table 2—Distribution of First Admission White Schizophrenics by Living Arrangement, by Quartile and Sex (Buffalo, 1949–1951)

Males * Living Arrangement	Quartile							
	I		II		III		IV	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Single	6	15.4	4	8.7	5	7.4	18	23.4
Parents, spouse	28	71.9	33	71.8	50	73.5	51	66.2
Other relatives	3	7.7	5	10.9	4	5.9	4	5.2
N. A.	2	5.1	4	8.7	9	13.2	4	5.2
Total	39	100.0	46	100.0	68	100.0	77	100.0

Females † Living Arrangement	Quartile							
	I		II		III		IV	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Single	9	14.5	2	3.9	10	12.5	6	8.8
Parents, spouse	42	67.8	41	80.5	61	76.2	54	79.5
Other relatives	8	12.9	6	11.7	5	6.2	6	8.8
N. A.	3	4.8	2	3.9	4	5.0	2	2.9
Total	62	100.0	51	100.0	80	100.0	68	100.0

* Chi-square test significant at 0.10 level.
† Chi-square test significant at 0.40 level.

Table 3—Distribution and Per cent of First Admission White Schizophrenics in Economic Quartiles, with Those in "Single" Living Arrangement Removed, by Sex (Buffalo, 1949–1951)

Economic Quartile	Males *		Females †	
	No.	Per cent	No.	Per cent
I	33	16.7	53	22.6
II	42	21.4	49	21.0
III	63	32.0	70	29.9
IV	59	30.0	62	26.5
Total	197	100.0	234	100.0

* Chi-square test significant at 0.01 level.
† Chi-square test significant between 0.05 and 0.02 level.

the observed and expected rates in the quartiles are significant for both males and females. The nonwhite patients, both male and female, are concentrated almost exclusively in the third and fourth quartiles primarily because no housing is available for the nonwhites except in quite limited areas of the city. For this reason the whites and nonwhites will not be combined in the analyses when economic quartiles are considered.

The age distribution and marital status of the schizophrenics in this study were found to be comparable with those described by Faris and Dunham and other investigators. The median age was 30.7 years for males and 33.5 years for females, with no significant differences among the quartiles. Sixty-two per cent of the males were single as compared with 39 per cent of the females.

In Table 2 are shown the number

Table 4—Number and Per cent of First Admission Schizophrenics Traced to Different Time Periods, by Race and Sex (Buffalo, 1949–1951)

White Time Period Traced to	Males		Females		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Admission only	35	15.2	15	5.7	50	10.2
1946–Admission	11	4.8	19	7.3	30	6.1
1940–1945	15	6.5	20	7.7	35	7.1
1925–1939	169	73.5	207	79.3	376	76.6
Total	230	100.0	261	100.0	491	100.0

Nonwhite Time Period Traced to	Males		Females		Total	
	No.	Per cent	No.	Per cent	No.	Per cent
Admission only	12	31.6	13	29.5	25	30.5
1946–Admission	11	28.9	8	18.2	19	23.2
1940–1945	1	2.6	9	20.4	10	12.2
1925–1939	14	36.8	14	31.8	28	34.1
Total	38	100.0	44	100.0	82	100.0

and percentage of schizophrenics in different living arrangements in the economic quartiles. Contrary to Gerard and Houston's findings in Worcester, these data indicate that the percentage of males living in a single setting is not significantly greater in Quartile IV than in Quartile I. Nor is there a difference for females. Table 3 shows the number of patients in each of the quartiles after those who lived alone are removed. Significant differences among the quartiles still remain for the schizophrenics living in family settings at the time of admission.

The success in tracing the patients to early residences in Buffalo appears in Table 4. It is apparent that the least success was obtained for the nonwhites, principally because of the large migration of Negroes from the South in the previous decade. Since it is unlikely that many of the nonwhites had previously enjoyed a higher socioeconomic status than that represented by the third or fourth quartiles of Buffalo, the effect of downward drift on the distribution of nonwhite schizophrenics was considered to be negligible. On the other hand, the tracing of white schizophrenics was quite successful. Over 80 per cent were traced back at least five years and the great majority were traced back 10 years or more.

In Table 5 the results of the tracing are shown for the white schizophrenics. It can be seen that the distribution of schizophrenics at an earlier date is not markedly different from their distribution at the time of admission. For women the changes shown emphasize a much greater concentration in the lower economic quartiles at the earlier date.

An additional analysis was made for

Table 5—Distribution of First Admission White Schizophrenics, by Quartile at Admission and Quartile of Earliest Address Found (Buffalo, 1949–1951)

Males * Quartile at Admission	Quartile of Earliest Address I	II	III	IV	Total	(No. Not Traced)
I	12	4	7	5	28	(11)
II	6	19	9	3	37	(9)
III	5	13	26	19	63	(5)
IV	4	4	6	53	67	(10)
Total	27	40	48	80	195	(35)

Females † Quartile at Admission	Quartile of Earliest Address I	II	III	IV	Total	(No. Not Traced)
I	33	10	12	7	62	(0)
II	6	20	13	10	49	(2)
III	10	13	30	18	71	(9)
IV	1	3	8	52	64	(4)
Total	50	46	63	87	246	(15)

* Chi-square (difference between early and admission quartile distribution) significant between 0.05 and 0.10 level.
† Chi-square (difference between early and admission quartile distribution) significant at 0.01 level.

Table 6a—Distribution, Before and After Tracing, of First Admission White Male Schizophrenics Traced to 1925–1930 *

Quartile at Admission	Quartile in 1925–1930				
	I	II	III	IV	Total †
I	4	2	3	3	12
II	4	5	3	1	13
III	2	5	11	11	29
IV	1		2	32	35
Total	11	12	19	47	89

Table 6b—Distribution, Before and After Tracing, of Matched Control Group Traced from 1925 to 1950

Quartile in 1950	Quartile in 1925				
	I	II	III	IV	Total †
I	4	4	6	1	15
II	5	5	1	8	19
III	1	4	12	14	31
IV				24	24
Total	10	13	19	47	89

* The patients included are those for whom matched controls could be obtained (see text).
† Chi-square (difference between schizophrenic and control group quartile distributions in 1950) significant between 0.05 and 0.10 level.

those patients who presumably had the most opportunity to drift. Among those traced back the farthest (to 1925–1930) and those traced to the age of 18 years or younger, the findings were the same as for the entire group.

Tables 6a and 6b compare the results of tracing the group of schizophrenics previously described and their matched controls. While there is a somewhat greater tendency for the schizophrenics to remain in Quartile IV than for the controls, the difference between the two groups is not significant.

Discussion

The findings of this study show quite conclusively that for first admissions of schizophrenics to state hospitals from Buffalo the concentration in the low economic areas is not the result of downward drift from higher areas. Nor is there any evidence that the concentration in the poor areas is the result of a recent migration into these areas of mobile men who live alone.

It might be speculated that the concentration of schizophrenics in the low-income areas is the result of relative drift; that is, schizophrenics remain in the lower quartiles while the rest of the population moves upward. The absence of a significant difference in upward mobility between the schizophrenic and control groups argues against this possibility. It must be admitted, however, that the control group selected is open to some question. The controls were traced forward from an early to a later

date while the schizophrenics were traced backward from a recent date to an earlier one. A requisite of this study was that both schizophrenics and controls had to be residents of Buffalo for at least 25 years. Since no attempt was made to trace persons who moved out of Buffalo, the control located nearest the schizophrenic could not be used in all instances. Whether or not individuals who moved out of the city were more likely to move up socioeconomically is not known.

Differences between the results of Gerard and Houston's work [4] and this study may be accounted for by the different methods used in determining the ecologic areas in the two cities and by the different time periods with which the two studies were concerned. The patients in the Worcester study who were admitted in the depression years of the 1930's may have contributed most heavily to the group living in single settings in the unfavorable areas.

Our findings are in substantial agreement with those of Hollingshead and Redlich [8] whose comparison of the social class positions of schizophrenics and their parental families showed that downward mobility could not account for the high concentration of patients in the lowest social class. Our data also substantiate their report of no differences in mobility between 12 schizophrenics in this lowest class and 30 controls.[9] However, we differ from their finding that 13 middle-class schizophrenics showed more upward mobility than 30 controls; this discrepancy may be due to the fact that their control study used different measures of mobility from those employed in our investigation and in their original survey.

If downward mobility or drift does not account for the higher rates of schizophrenia in low-income groups, then more intensive investigation is required to test the other hypotheses that have been suggested.

Discrepancies in diagnostic and hospitalization practices among the different social classes may be held to account for the differences found in this and other studies using patients receiving care in or out of hospitals. Such discrepancies, however, cannot readily be implicated in the Hyde and Kingsley study which, utilizing Selective Service examinations, would be less likely to favor one social group over another.

Genetic factors may also be invoked to explain the greater occurrence of schizophrenia among the low-income groups. It might be speculated that the families bearing the hereditary handicap of schizophrenia tend over a period of generations to become concentrated in the low-income areas. However, the significance of heredity in schizophrenia has not yet been fully and precisely determined.

On the other hand, the higher rates of schizophrenia in poor neighborhoods may well be due to the psychologic strains imposed by low income with the concomitant struggle to obtain the necessities of living, fear of unemployment, the lack of job satisfaction, the overcrowded and inadequate housing, the restricted educational and recreational opportunities, and the low social status. Or they may result from differences in the extent of social isolation as suggested by Faris and Dunham [3] and Jaco [10]; to variations in family structure and relationships as suggested by Clausen [11]; or to other social, psychologic or physiologic differences among the social classes.

We recognize that in schizophrenia, as in other diseases, we are probably dealing with a combination of etiologic factors. Somatic, social, and psychologic elements may play a part in the development of the disease process and may therefore have to be taken into account in order to achieve effective control.

Tuberculosis presents a persuasive

analogy. While tuberculosis is obviously an organic disease, it is just as clearly a social disease, taking its greatest toll among low-income, unskilled laborers suffering from overcrowded housing and poor nutrition. As Frost [12] and many others have pointed out, the continued decline in tuberculosis mortality has until recently resulted primarily from the amelioration of social conditions. In the past decade, however, the new antituberculosis drugs have considerably changed the picture, producing a much sharper decline in mortality than had been possible before.

Similar progress in the control of schizophrenia requires greatly stepped-up programs of fundamental research into the problems of etiology. We believe that more serious attention to epidemiologic studies designed to investigate the social factors in schizophrenia can result in significant contributions to our knowledge of the disease.

Summary

This study of first admissions of schizophrenic patients to mental hospitals from the city of Buffalo demonstrates that the higher schizophrenia rates in low-income areas are not the result of downward mobility or drift from a higher status. In addition, the study fails to confirm the theory that the high rates in poor sections are the result of recent migration into these areas of mobile men who live alone.

Comparison of a group of schizophrenics and matched controls shows no significant differences in upward mobility between 1925 and 1950, suggesting that relative drift does not account for the concentration of schizophrenics in low-income neighborhoods. However, there is some question regarding the adequacy of the control used.

The authors emphasize the point that socioeconomic differences in schizophrenia may offer significant clues to the etiology and eventual control of the disease.

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Dental School for Puerto Rico

A dental school to accept its first class in September, 1957, is being established at the Medical School of the University of Puerto Rico in San Juan. A. Raymond Baralt, Jr., D.D.S., dean of the Chicago School of Dental Surgery, Loyola University, has resigned, effective September 1 to establish the school and become its dean.

Evaluation of Methods for Reporting Coliform Density

EDWARD S. HOPKINS, F.A.P.H.A., and KARL H. SCHAMBERGER

The increasing use of streams for water supply and assimilation of industrial wastes as well as domestic sewage is an ever-present pressure upon health authorities to "do something" about their control. In turn, that same pressure widens professional interest in this technical paper.

During the past year there has been some discussion in the literature concerning the most appropriate method for estimating the density of coliform organisms in raw and river waters. Some of these papers have attempted to show the statistical relationship between coliform density and enteric and typhosus organisms. A recent article indicates that the arithmetic mean calculated from a series of most probable numbers is "a more valid measure of the hazard from enteric pathogens than other averages such as the geometric mean and the median." This concept is supported by plotting the observed density as most probable number on log-probability paper and then calculating the arithmetical mean from these data.[1]

Over the years many agencies have adopted bacterial standards for stream pollution. The Ohio River Committee report,[3] published in 1943, limits the desirable coliform density, expressed as the most probable number, to 5,000 per 100 ml as the maximum density with subsequent purification. The older study by Streeter[4] in 1927 establishes the same limit using the Phelp's index. Both are average values (arithmetical mean). Although not so intended by that agency, the Ohio River Committee criterion has been generally accepted as a usable standard to reduce pollution in the major rivers of this country.[5]

Macdonald[6] in a recent article has suggested that the monthly observed median "is better suited for computations to determine the index of water quality." This is not concurred in. It is noted in that study that the median of nine hourly samples from the Algiers station was 35,000 and from the Carrollton station 130—in comparison to an arithmetical mean of 44,225 and 142, respectively. The geometric mean, a more exact central tendency in relation to bacterial testing procedure, was 10,510 and 117.

Since the coliform index is but an indication of pollution, a density of 200,000 or 2,000,000 organisms per ml is of equal administrative concern since both conditions indicate the presence of polluted water. It is well known that the average (arithmetical mean) gives equal value to both high and low measures. Recognizing that rivers and other streams subject to the influence of storm runoff drainage will fluctuate in coliform density, it is apparent that the maximum and minimum frequency encountered differ vastly in numerical value. When these conditions are additionally complicated by the influence of "catch" samples taken at either

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periodic or infrequent intervals, it is apparent that fluctuations in numerical value are to be expected and that these type samples do not necessarily represent comparable bacterial densities in a river or other raw water source. It is obvious that the constantly changing conditions in a flowing stream would not be reflected in a "catch" sample taken once every 24 hours or even at more frequent intervals.

This is illustrated by the basis of payment to milk producers based on the total bacterial count in the milk. Experience has indicated that the logarithmic average of these counts (geometric mean) is a better estimation than the use of the arithmetical mean (average). As an illustration:

	Counts	Logarithm
	1,000,000	6.00
	20,000	4.30
	30,000	4.48
	15,000	4.18
Average	266,250	4.99 or 97,730

In this calculation the logarithmic average (geometric mean) of 97,730 is accepted as the fairer one since the unusual high count of 1,000,000 may have been caused by accidental contamination, poor refrigeration, etc., not inherent in routine operations.[2]

Comparable to the unusually high milk count of 1,000,000 caused by accidental contamination, a "catch" water sample from a highly polluted river may contain a clump of mud carrying organisms and may therefore not show the actual bacterial characteristic of the stream at that time. Conversely, it is also possible that under conditions of normal flow and clarity, the "catch" sample may miss a clump of bacteria since, as is shown in Table 1, zero densities are occasionally reported. Recognizing that flowing streams are always potentially contaminated, it is apparent that a zero density is not statistically significant and that one colony should be the minimum reported.

Table 1—Most Probable Number Coliform Organisms, as Reported

Gunpowder River—Impounded, Loch Raven Reservoir, Md.:												
2	5	0	2	9	5	0	0	0	0	0	2	
5	2	4	9	5	2	2	5	15	5	15	8	
15	15	38	12	5	21	9	15	15	38	9	15	
2	12	38	38	9	15	38	5	240	5	9	9	
240	5	9	15	15	2	12	2	5	9	2	2	
5	2	2	9	15	9	38	16	240	15	38	38	
96	240	38	15	38	15	38	38	9	9	9	12	
9	38	9	4	21	240	5	12	38	9	9	5	
38	9	5	15	27	2	15	38	15	2	15	15	
9	0	5	2	4	15	9	2	2	15	15	2	
9	4	9	2	9	2	5	0	2	5	15	5	
5	0	0	5	5	2	5	2	9	2	0		
										Total tests		143
Lake Michigan—Intake, Chicago, Ill., Filtration Plant:												
8	6	12	13	19	12	12	13	13	4	2	6	
98	1,300	120	98	140	74	82	52	41	17	27	34	
67	5	1	82	170	5	2	1	1	0	7	3	
1	1	0	0	0	1	95	1,300	120	98	140	60	
79	52	31	14	25	33	26	0	0	44	23	4	
6	8	3	5	4	6	17	10	7	4	4	3	
100	5	7	13	12	4	7	3	5	20	11	13	
16	22	22	30	23	15	16	2	4	1	2	0	
1	1	1	0	1	1	0	100	0	3	1	0	
0	0	1	1	2	1	2	3	10	2	16	1	
1	1	10	17	14	10	27	32	11	11	28	26	
8	11	6	35	5	12	20	5	8	35	5	6	
6	4	6	10	24	13	1	10	2	5	17	30	
7	5	28	7	3	3	2	54	1	7	8	1	
5	27	3	2	6	3	3	7	23	10			
										Total tests		178

Table 1—Most Probable Number Coliform Organisms, as Reported—Continued

Potomac River—Intake, Washington, D. C.:

742	1,408	670	1,144	528	3,781	277	689	3,269
573	900	3,404	182	1,483	807	140	1,211	4,351
366	661	2,084	561	640	1,033	99	51	391
19	99	71	32	34	28	107	31	97
25	38	74	254	146	49	17	19	35
97	46	157	20	22	26	11	115	31
11	18	8	11	14	26	35	35	231
2,500	2,500	231	231	2,500	231	2,500	231	231
231	2,500	15	231	35	2,500	2,500	2,500	231
							Total tests	81

Patuxent River—Maryland Highway Bridge:

25,000	231	25,000	25,000	25,000	2,500	35	
2,500	25,000	2,500	2,500	250,000	2,500	2,500	
231	231	231	35	231	231	231	
35	231	231	2,500	231	2,500	2,500	
231	35	2,500	231	231	15	35	
2,500	231	231	2,500	2,500	2,500		
231	2,500,000	2,500	231	250,000	250,000		
						Total tests	47

Susquehanna River—Intake, Havre de Grace, Md.:

2,500	231	35	2,500	231	35	35	
35	231	231	231	231	2,500	35	
25,000	2,500	231	35	2,500	25,000	35	
25,000	2,500	2,500	2,500	25,000	25,000	2,500	
2,500	2,500	35	231	231	2	231	
25,000	2,500,000	2,500	2,500,000	231	25,000	231	
2,500							
						Total tests	43

Missouri River—Intake, St. Louis, Mo., Howard Bend Plant:

7,500	10,000	8,500	8,500	8,500	9,000	9,500	8,500
9,500	8,500	10,000	10,000	10,000	9,000	10,000	9,500
25,000	8,000	7,500	6,000	8,000	8,500	6,500	25,000
10,000	7,500	8,000	9,500	9,500	9,000	10,000	15,000
9,500	10,000	10,000	30,000	35,000	15,000	15,000	6,000
35,000	15,000	40,000	15,000	10,000	15,000	6,500	4,000
9,000	8,500	9,000	55,000	200,000	8,500	8,500	8,500
8,500	8,500	8,500	9,000	8,500	9,500		
						Total tests	62

Mississippi River—Intake, St. Louis, Mo., Chain of Rocks Plant:

8,200	4,600	8,200	8,200	2,800	4,600	4,600	28,000
4,600	6,400	10,000	8,200	4,400	4,600	4,600	8,000
2,600	8,200	4,600	10,000	10,000	64,000	28,000	10,000
28,000	46,000	100,000	46,000	44,000	28,000	46,000	2,800
8,200	8,200	6,400	10,000	8,000	44,000	28,000	44,000
28,000	26,000	26,000	46,000	64,000	46,000	28,000	6,400
82,000	10,000	44,000	8,200	8,200	8,200	8,200	2,800
8,200	8,200	25,300	4,600	6,400	6,400	8,200	10,000
8,200	8,200	8,200	10,000	64,000	10,000	64,000	46,000
82,000	44,000	26,000	46,000	46,000			
						Total tests	77

Of the methods advanced for estimating average coliform density from a series of most probable number counts, the one selected should have the properties of giving an unbiased estimate and, for an equal number of observations, minimum variance. For variables that are normally distributed, the arithmetical mean has these properties. The most probable numbers of coliform organisms presented in Table 1 from the various rivers are obviously not normally distributed. Therefore, the arithmetical mean of these values does

not provide the desired measure of central tendency. This is illustrated in Table 4 showing an array of frequency values in the increasing order of the most probable number from the various sources under study. It is believed that a measure of central tendency other than the arithmetical mean would be of greater use in comparing the bacterial characteristics of one river with another or the conditions from month to month or year to year in the same stream.

One or two extremely high or low daily values reported during a month distort the arithmetical mean to such an extent that it does not truly represent general conditions for the period. This is apparent when the daily figures are placed in an ascending array, since zero at the beginning and a very high count, usually in the millions, at the end have equal value in computing the average (arithmetical mean).

The expression "central tendency" is considered to denote any single measure that is representative of a group of measures. It is apparent that this could be the median, geometric mean, or arithmetical mean (average). In many instances water supply and health department monthly reports, based upon daily figures, include the median and arithmetical mean (average) as central tendency measures. This is usually the observed median from the array and is the mid-point value. Under these conditions it is a measure influenced by the position of the items in the array (Table 2), but not by their magnitude. The larger items in the array may have any value greater than it and the smaller items any value smaller. It therefore does not reflect a true central tendency measure. It is apparent that the erratic values shown in the observed median are caused by incremental characteristics in the bacterial testing procedure for the most probable number. The incremental density increase between the number of positive portions in the 10 ml series is about 1:30. However, when the 1 ml portions are positive, this relation changes to 1:60, therefore increasing in direct ratio to the number of portions and dilution used. This is illustrated by an inspection of the various measures shown in Table 3. Use of a large number of tubes in each test instead of the normal 5 to 7, would have dispersed these values. This dispersal would have been reflected in the observed median causing it to be closer to calculated values.

Table 2—Coliform Density in Susquehanna River Samples

	Daily Test (MPN)	Logarithmic Value	Geometric Mean
	2,500,000	6.3979	
	2,500,000	6.3979	
	25,000	4.3979	
	25,000	4.3979	
	25,000	4.3979	
	25,000	4.3979	
	25,000	4.3979	
	25,000	4.3979	
	25,000	4.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	2,500	3.3979	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	231	2.3636	
	35	1.5441	
	35	1.5441	
	35	1.5441	
	35	1.5441	
	35	1.5441	
	35	1.5441	
	35	1.5441	
	35	1.5441	
	2	0.3010	
Average	121,176	2.9947	988

Studies have been made of the coliform densities in several types of waters (Table 1). These densities, with one exception, are based upon daily reports over a period of three months and comprise single "catch" samples for each day. It will be noted from this table, in which the measures are arranged as reported, that there is a variance from zero to 240 for the impounded Gunpowder River water in comparison with 4,000 to 200,000 for the Missouri River water. It is of interest to note that the small Patuxent River had a maximum density of 2,500,000 coliform organisms in comparison to 200,000 for the Missouri River. It is apparent from the previous discussion concerning the relationship between the bacterial counts in milk and a clump of mud carrying organisms that a more equitable measure of central tendency should be adopted for comparative purposes than the arithmetical mean.

An examination of Table 3 discloses that the geometric mean (average of logarithmic values) of the various coliform densities is nearer to a series of central tendency density than the arithmetical mean. As would be expected, the geometric mean equalizes high and low measures and is therefore in close agreement with the observed median in waters having a low density or relatively uniform range in values. It will be noted that for the water from Lake Michigan and the impounded Gunpowder River water the observed median, the arithmetical mean, and the geometric mean had practically the same value. With waters having a considerable variance in range, the geometric mean was relatively close to the mean and median computed by formula using logarithmic value, showing that this measure gives a picture of central tendency that is a truer comparison than the values given by the observed median or arithmetical mean. It is also of advantage to use the geometric mean for comparison of coliform densities since it is a precise measure of central tendency and is not difficult to obtain. As illustrated in the bacterial count of milk, it is obtained by averaging the logarithmic value of the daily items as reported on the monthly sheet. Since the average purification plant report presents daily measures of coliform density and a monthly average (arithmetical mean), it is quite possible to add a column to the form showing the logarithmic value of these daily measures and then place the average of the

Table 3—Comparison of Coliform Densities from Various Raw Waters

	Source:						
	Gunpowder River Impounded	Lake Michigan	Potomac River	Susquehanna River	Patuxent River	Missouri River	Mississippi River
Samples	143	178	81	43	47	62	77
Maximum density reported	240	1,300	4,351	2,500,000	2,500,000	200,000	100,000
Minimum density reported	0	0	8	2	15	4,000	2,600
Arithmetical mean	20.5	33.6	720	121,176	72,668	15,161	22,446
Observed median from an array	9	7	231	2,500	2,500	9,500	10,000
Geometric mean	7.9	8.2	181	988	1,212	11,080	12,410
Calculated from frequency distribution data:							
Mean	7.7	8.1	169	832	955	10,750	13,680
Median	6.8	8.0	154	1,033	1,027	9,279	10,880

Table 4—An Array Showing Frequency Values in Increasing Order of the Most Probable Number

Gunpowder River Impounded		Lake Michigan				Potomac River			
Actual MPN	Frequency	Actual MPN	Frequency	Actual MPN	Frequency	Actual MPN	Frequency	Actual MPN	Frequency
0	10	0	14	28	2	8	1	182	1
2	25	1	21	30	2	11	3	231	9
4	4	2	10	31	1	14	1	254	1
5	23	3	11	32	1	15	1	277	1
8	1	4	8	33	1	17	1	366	1
						18	1	391	1
9	26	5	11	34	1	19	2	528	1
12	5	6	9	35	1	20	1	561	1
15	23	7	8	41	1	22	1	573	1
16	1	8	5	44	1	25	1	640	1
21	2	10	7	52	2				
						26	2	661	1
27	1	11	4	54	1	28	1	670	1
38	16	12	5	55	1	31	2	609	1
96	1	13	6	60	1	32	1	742	1
240	8	14	2	67	1	34	1	807	1
	143	15	1	74	1				
						35	4	900	1
		16	3	79	1	38	1	1,033	1
		17	4	82	2	46	1	1,144	1
		19	1	95	1	49	1	1,211	1
		20	2	98	3	51	1	1,408	1
		22	2	100	2	71	1	1,483	1
		23	3	120	2				
						74	1	2,084	1
		24	1	140	2	97	2	2,500	8
		25	1	170	1	99	2	3,269	1
		26	2	1,300	2	107	1	3,404	1
		27	3			115	1	3,781	1
					178	140	1	4,351	1
						146	1		
						157	1		81

Patuxent River		Susquehanna River		Missouri River		Mississippi River	
Actual MPN	Frequency	Actual MPN	Frequency	Actual MPN	Frequency	Actual MPN	Frequency
15	1	2	1	4,000	1	2,600	1
35	5	35	8	6,000	2	2,800	3
231	17	231	12	6,500	2	4,400	1
2,500	15	2,500	13	7,500	3	4,600	8
25,000	5	25,000	7	8,000	3	6,400	5
250,000	3	2,500,000	2	8,500	14	8,000	2
2,500,000	1		—	9,000	6	8,200	17
	—		43	9,500	7	10,000	9
	47			10,000	10	25,300	1
				15,000	6	26,000	3
				25,000	2	28,000	7
				30,000	1	44,000	5
				35,000	2	46,000	8
				40,000	1	64,000	4
				55,000	1	82,000	2
				200,000	1	100,000	1
					—		—
					62		77

values in a second column as the geometric mean. This is illustrated in Table 2.

To show the relation between the various measures of central tendency, the calculated mean and median were determined from frequency distribution tables compiled from the logarithmic values of the reported densities (Table 3). It will be noted that the observed median is smaller than the arithmetical mean, showing this distribution to be

unsymmetrical. It will also be noted that the mean usually exceeds the median in these measures calculated from frequency distribution—due to the presence of a few high values not offset by corresponding low values. If the distribution is entirely symmetrical, that is, equal values on either side of the median, the mean would be less than the median. When there are a few items at great variance from the norm, the median will be only slightly affected, as is true in the data from the Missouri and Mississippi Rivers. The arithmetical mean, however, is affected by the value of every item in this series and the presence of one or a few extremely large or extremely small items in a series may result in a value which is misleading.

Analyzing the information shown in Table 3, it becomes apparent that a more uniform relationship is found in the coliform density between the geometric mean of the daily measures and other central tendency values. This uniformity is characteristic when comparing data from the same stream or various sources and provides an unbiased estimate having minimum variance.

The introduction of this new mathematical manipulation in existing water report procedures would not be burdensome and the relatively simple method of establishing the central tendency density would justify its use. It is believed that integration of this procedure as a part of the "Manual of Recommended Water Sanitation Practice" will be of advantage.[7]

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Day-Hospital at Roosevelt

Roosevelt Hospital in New York City has extended its seven-year-old pilot program in psychiatry to day-hospital care. A 16-bed unit has been established for patients who need intensive treatment, but who do not require full hospitalization. The plan includes group psychotherapy and occupational therapy, as well as individual psychotherapy. The hospital believes itself to be the first in the area to adopt a day-hospital plan, a therapeutic approach first pioneered in Montreal. The plan "reflects the trend in increased recognition of the need to treat the patient as a whole in general hospitals with full consideration of the psychiatric aspects of many diverse types of illness."

The new plan has been made possible with the cooperation of the New York State Department of Mental Hygiene and the New York City Community Mental Health Board. The department almost simultaneously announces the opening of two day-hospital care centers; one of ten beds and other facilities in a separate wing of the Hudson River State Hospital in Poughkeepsie; the other in the Brooklyn Aftercare Clinic, New York City.

Role of Organized Medicine in the Development of Rural Health Plans

B. M. OVERHOLT, M.D.

Told here is the story of the establishment of medical services in a poor community lacking health facilities of any kind. What teamwork accomplished there would seem to lend encouragement to efforts to provide public medical care elsewhere.

The fundamental philosophy that organized medicine can, and should, assume an active role in the medical affairs of local communities and shall stand in a position to assist in, and insure, the provision of good medical care to the people of the state is a concept embodied in the minutes of the House of Delegates of the Tennessee State Medical Association. To lend a degree of permanence and continuity to any long-range planning program for the solution of medical care problems of urban and rural communities, the association formed the Tennessee Medical Foundation in 1952, and the achievement of the objectives outlined was made the responsibility specifically of this foundation. The foundation can accept grants, benefits, or donations to carry on its work—which is conceived of, not as the responsibility of a small group or element, but as the province of the universities, the Tennessee State Medical Association, the Department of Public Health, and all agencies directly related to the total problem of medical care and health.

The immediate goals which the foundation has sought to achieve are: (1) to assist communities in an analysis of their community needs, with its complex interrelationships, to bring together all agencies in the community and state to work for a solution of the medical care problem; (2) to assist in the recruitment of physicians and attempt to provide such physicians with channels of contact to leading hospitals and universities; (3) to sponsor a system of specialist consultation to the rural physician; (4) to integrate the contribution of the state public health service and the voluntary agencies of each community; (5) to extend the program of organized postgraduate training to the rural areas; and (6) to assist in the planning and staff organization of community type hospitals in rural areas.

In order to gain more experience in the solution of complex problems associated with the total health picture in rural communities the foundation selected three representative communities which were considered as target areas. It was felt that the solution of the problems exhibited by each one of these communities would be applicable to a state-wide approach to the entire problem eventually. The areas selected as targets exhibited different characteristics.

The first was a rural community in which money was available for the construction of a health center, where the economy of the community was relatively stable, but where no adequate workshop had been provided for a physician. As time disposed of the older country doctor, no young doctor had become available. Communities exhibiting these features were multiple throughout the state, as well as the na-

tion. The solution of the medical care problem in such a community offers no great difficulty. The needs are, largely, direction from the proper voluntary agencies, the state public health department, the state medical association, a local planning committee, and in the case of Tennessee, the Tennessee Medical Foundation. This type of community almost always desires a small hospital in conjunction with the doctor's office, and in most instances a survey will reveal the fact that no hospital is needed. Rather, it is usually pointed out by the surveyors that such a hospital would lead only to misuse and debt. Our experience to date has been that one of the most important functions of the Tennessee Medical Foundation has been to demonstrate to communities that they do not need hospitals. It is obvious from our studies so far that more money should be directed into the construction of adequate workshops for physicians and to provide such physicians a sponsorship by organized medicine with channels of contact to teaching hospitals and universities and adequate consultation services. It is our firm conviction and experience as of this date that the "dropping" of a young physician into a rural community without furnishing him with continued incentives is a mistake.

The second target area represents a much more difficult problem, namely, the establishment of a community type, open staff hospital serving a large rural area and the closing of small individually owned proprietary hospitals. In the first place, the small rural type, proprietary owned hospital represents a considerable investment by the physicians involved, and the mechanisms by which they can be closed and the transition made to an open staff community hospital are by no means easy. As a general rule, the conferences by all parties concerned, particularly regarding the functions of accreditation, staff organization, the relationship of the staff to the board of directors, and the establishment of audit committees, become a rocky road. The experience of the foundation in its struggle to accomplish its objective in this field, has shown it to be one of our most difficult problems —but not impossible of solution.

The third target area represents a problem in medical care and economic research which is even more difficult, and that is the development of medical care in rural areas which are relatively indigent, where actually there is no real community leadership, where community pride and responsibility have not been fully developed, and where economically and socially there are no advantages offered to a physician. Yet in such a community there may be several thousand people who need medical care. The role and responsibility of organized medicine in the development of medical care programs in such communities, devoid of all the usual social amenities necessary for the happiness of a physician and his family and with a rather bleak economic prognosis for the future, represent fundamentally a difficult obstacle for organized medicine to solve. It is of such a community that I wish to relate.

Community X is a rural, agricultural, coal mining community in a valley approximately 10 miles long, surrounded by mountainous areas and more or less isolated, with a total population of about four thousand, and with substandard or no medical services. In the past the medical needs of the community had been administered by individuals with no license to practice medicine. There is no question but that the lack of ade-

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quate medical services was reflected in the high mortality rate in this area.

It was in such an area that the Tennessee Medical Foundation, through its field secretary, started a survey in 1953. It was found that there were approximately eight hundred families with no one central large community—rather, the families were scattered throughout the entire valley. None had access to a local physician. Forty-one per cent of the heads of the household had no work at all; another 25 per cent had less than five to 14 days work a month; and only 18 per cent worked 20 or more days during the month. Thirty-one per cent farmed less than five acres; 36 per cent relied upon from five to 19 acres. Eighty per cent of the houses in the area were of frame construction, some were weather-boarded; 40 per cent of the houses had never been painted; 86 per cent were heated by stoves; and only 30 per cent of the houses contained anything approximating modern bathroom facilities. Over half the people disposed of the garbage by throwing it out of some convenient door or window. (Nine per cent had a nearby creek in which to throw the garbage.) Less than 1 per cent buried it. Eighty-five per cent of the toilets were of the outdoor variety, and most of these were insanitary. A dental survey of 223 children in one community revealed 1,547 cavities; only 13 children had good teeth, 55 fair, and the rest very poor. The median years of school completed for persons 25 years and older was about 5.7 grades.

Obviously, no available money was in the county treasury for construction of a workshop for a doctor, and no doctor would go into such a community and establish his own private office. The problem presenting itself economically was simply this: how could organized medicine afford to furnish adequate medical care to these people? In the estimation of the Board of Directors of the Tennessee Medical Foundation the solution of the problem of such a community would, from a practical standpoint, answer some of the criticisms directed at organized medicine regarding substandard medical care in rural areas. It must be remembered that the people in such communities frequently do not move to better economic situations, that they are rooted firmly from childhood to these areas and will continue to live there regardless of their economic state. Not unusually male members migrate to jobs of a transient or temporary type or even commute to work, leaving their families to reside in the valley.

The problem was approached in this manner: the foundation contacted a few of the people who might conceivably be called leaders in the community, such as pastors of churches, one or two merchants who owned stores, the president of the Parent Teachers Association, a member of a labor union, and a farmer. The conceptions these people had of medical care and of the health needs of the valley varied. After many conferences with the field secretary of the Tennessee Medical Foundation and voluntary agencies interested in the problem, the community leaders formed a building committee. The committee rented an abandoned commissary building for one dollar a year. A campaign was then started for the procurement of funds among the people of the valley. What they lacked financially they made up in individual endeavors, such as contributing their labor and time to renovate the building. Equipment for the doctor's office was donated by members of the medical profession and the State Department of Public Health. In a matter of three months the former old commissary building presented a rather suitable doctor's workshop, equipped with necessary laboratory facilities to do routine procedures, and in addition an adequate diagnostic

x-ray machine. The Public Health Department of the state furnished part-time services of the nurse for this area. The nurse's salary was supplemented by a donation from the Federated Women's Clubs of Tennessee.

The services of a physician for the area presented a difficult problem because of the obvious lack of any medical, social, or economic incentives. The Tennessee Medical Foundation visited the deans of the two medical schools in Tennessee, and through one of them procured the services of a competent young physician. It should be mentioned here that one of the incentives to the physican going to this area was that at the completion of a two-year period a residency training program would be offered to him by one of the university medical schools. It is also obvious that a physician going to this type of area would be primarily interested in furnishing good medical care to the people, that he must be endowed more or less with a missionary attitude; but also one of the motives would be the fact that an adequate income would enable him to save money for the future. The Tennessee Medical Foundation guaranteed the physician's salary and the expenses of the office, and all proceeds and all collections were returned to the Tennessee Medical Foundation. This is essentially an underwriting sponsorship. A large labor union interested in the betterment of medical care for the area, because of the number of its constituents involved, purchased specialty services from the Tennessee Medical Foundation. Specialists from the Knoxville Academy of Medicine in effect donated their services by turning their checks for fees back to the Tennessee Medical Foundation.

This illustrates the role organized medicine played in the establishment of an adequate medical facility where substandard medical care practices were obvious. It represents team play between organized medicine, labor, community groups, voluntary agencies, the public health department, and lay organizations.

After 14 months of operation the following statistics can be presented. A total of 5,285 patients was seen; 48 babies were delivered in the obstetrical unit of the doctor's office. As the cost of operation of the doctor's office was approximately $1,700 per month during the first few months, the Tennessee Medical Foundation was running heavily in the red. Total collections over the 14-month period, however, were $24,856.72. The total cost of operation was about $23,000, not including cost of some equipment.

Economically, therefore, organized medicine can establish a doctor's office in a community with a bleak economic outlook. The development of community responsibility, making a doctor and his wife happy in such a community, and the matter of a health education program by the state public health department and voluntary agencies are only a few of the problems that need additional time. The Tennessee Medical Foundation is a practical mechanism whereby organized medicine can formulate procedural patterns that may be helpful to rural communities concerned with the alleviation of problems involved in the provision of good medical care.

Food for Thought—School Health Education Around the World

JENNELLE MOORHEAD, F.A.P.H.A.

Is there anything of meaning to American public health practice in these vignettes from the East and the Near East? There may be for the projective reader, for it is through others that we may often see a little something of ourselves.

In discussing school health education around the world a few observations about school health education in the United States should be made. Our generation has become so accustomed to safe water supplies and sewerage systems that we seldom think of them as the very foundation of our way of life. We, therefore, frequently fail to provide our present generation of school children with adequate information on the importance of these fundamentals of public health protection. When one studies health problems in Asiatic countries the basic importance of safe water supplies and adequate sewage disposal are dramatically apparent.

In five of the Asiatic countries visited —Thailand, India, Pakistan, Iraq, and Lebanon—the health problems of millions of people lead directly back to environmental sanitation. Improvement in health, living, and economic welfare in these countries is dependent on the inauguration of sanitation procedures. However, these procedures cannot be successful unless they are based on an understanding of the relationship of disease to contaminated water and indiscriminate disposal of human excreta. In the underdeveloped countries the high priority of health education, both of adults and children, is recognized much more clearly than in the United States.

The acceptance of what we in the United States consider fundamental environmental sanitation concepts is not a simple matter in Asiatic countries. The health concepts we accept may violate or challenge their religious, cultural, or philosophical views. No matter how advantageous environmental sanitation and health education may appear to us in Western civilization, if they are to be accepted by the Asiatic countries they will have to be related to the values and attitudes underlying the practices in each country. They must not violate either religious beliefs or folkways which vary from country to country and from village to village within countries. Some religions hold the fatalistic viewpoint that the "Supreme Being" wills the situation. Therefore, it is not amenable to change and it is useless, if not sinful, to try to change it. The cultural anthropologist and some educators recognize and point out the fact that the culture of a people is an integrated functional whole and that when you change one part of it you upset the equilibrium of the total cultural pattern. Changing sanitation practices cannot help but have far-reaching effects on cultural patterns and thus create new problems.

So education of both the adult and the child is extremely complicated and progress in changing health habits and practices will be slow. Adult health education and school health education will need to proceed simultaneously,

since there are grave complications when a child is taught procedures and practices that alienate him from his family and its cultural pattern.

School health education, as we know it, is practically nonexistent in the underdeveloped countries. The burden of illiteracy, joined with the poverty of the majority of these people, imposes on the limited number of schools a crushing educational responsibility which they can meet by teaching children only to read and write. It is the fortunate few in Asia who have the opportunity for more extensive education.

While the health and educational problems of the seven countries of the Far East and Middle East I visited appear staggering, heroic efforts are being made by each government through its public health officials to reduce these problems. I returned from my study trip with a deep respect and admiration for the Asiatic nationals who are attempting to solve their health and educational problems and with an intense feeling of pride in the American educators and public health officials who are giving technical advice and assistance.

The following material in this paper has been most difficult to write, not from the viewpoint of reporting conditions, but from the viewpoint of international relations. I do not want to point the finger of censure at nations or at policies of exploitation, or to assign responsibilities for conditions that we in this country would consider little short of criminal. International relations would not be improved by reporting the friction and the undercutting by other nations of American efforts to provide the technical aid requested by governments of underdeveloped countries. I will try to indicate the magnitude of the problems and what is being done—without being unduly critical of the failures, the inefficiencies, and the corruption that may exist. My reporting will obviously be based on what I saw and what I was told, which means a limited presentation of what is being done for health in these countries.

Japan

While Japan is an Asiatic country, the programs of health and education have been strongly influenced by Western civilization in that their programs are well developed. The Japanese place great emphasis on the health of the school child. In the Tokyo elementary schools visited there are health rooms with dental chairs for remedial dental work and charts on the walls showing a low incidence of dental caries. Each school had a nurse for health inspection and in Tokyo it was the policy to assign to each school private physicians whose offices were adjacent. Health instruction, as a special subject, is taught in secondary schools by teachers whose teacher-education program included training in health education.

I had the opportunity of addressing the Tokyo Secondary Health Teachers at a meeting held at the Rockefeller Public Health Institute where I also discussed school health problems with the institute staff members. These doctors were especially interested in school health problems and stated that the same conflict we have in the United States exists in Japan; namely, who is to provide school health services—the Department of Education or the Department of Health? In Japan school health services are provided by nurses and doctors employed by the public schools.

The health of Japanese children will

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be greatly influenced by their extensive and aggressive Parent Teacher organization, which has a membership of thirteen million well organized and active members. The PTA has been the organization used to teach democratic procedure in Japan and has proved to be a very popular movement. It has been greatly helped by the Division of Social Education, a part of the village, city, and prefectoral government structure. This division has for its purpose helping the PTA and a few similar organizations to function successfully. Among the most intelligent people I met in Japan were the leaders of the PTA movement and the personnel of the Social Education Division. I found the Japanese people friendly, eager to participate in democratic organizations, highly intelligent, and efficient.

Thailand

The people of ancient Siam, now Thailand, are friendly, cheerful, and optimistic. According to Dr. Yong Chamitia, director of the Thai Division of Nutrition, there is no starvation among the millions of Thais, but there is a great deal of malnutrition. This lush, well watered land produces abundant food for the population, but the problem is to increase the use of eggs, chicken, fish, and unpolished rice in the daily diet.

The health problems of Thailand are similar to those of most countries in that part of the world; their greatest needs lie in the fields of environmental health, malaria control, medical care, medical education, and organization of the Health Department. In their Ministry of Public Health there is a Division of School Health and also a Division of Health Education. The objectives of both are to build up these divisions as rapidly as possible and develop a long-range health education program for Thailand. The emphasis will be on staff training and the production of visual materials suitable for use in the fairs, or wats, which the Thais so thoroughly enjoy. An emphasis will also be placed on inservice training and school health education at the local level.

The production of a basic curriculum for teacher training will have far-reaching influence upon the education of Thailand and the school health education program. With the assistance of the United States Operations Mission to Thailand a two-year teacher education program has been organized titled, "Our Thai Community." In April, 1955, I had the opportunity of attending the first session of this new project. The printed curriculum shows a carefully worked out relationship between Thai culture and community health problems. School sanitation surveys are to be undertaken this fall. I might point out that the American concept of a school is not valid in Thailand. Their schools must be open enough to allow free circulation of air, due to the hot humid climate, closed enough to keep out the torrential rains, and on high enough stilts to allow water to flow under them. Presently, rural schools do not have a safe water supply or even the old-fashioned outdoor privy. A sound practical start has been made, but much remains to be done, both in school sanitation and health education.

The greatest gains so far in health in Thailand have been made in malaria control. Public health officials state that by 1956 fully 86 per cent of the malarious areas would have the disease under control. In 1955 the homes of some seven million people will have been sprayed. As these facts are presented, my mind's eye sees hundreds of charming naked children playing on the city streets; canals with filthy dirty water (in which they wash, bathe, and then drink); magnificant golden temples;

hundreds of yellow robed priests; and food served with no realization of the germ theory of disease.

India

In a few words and a few minutes one cannot characterize India with its tremendous population, its poverty, its natural and man-made beauty, its seemingly insufferable burden of disease, together with a pattern of life made almost inflexible by a pride in and concern for spiritual values which relegate material values to small importance. The first impression of India is one of tremendous poverty coupled with so many social and economic problems that one is bewildered. This state of mind gradually changes, as one meets and talks to Indians involved in health and education projects, to a feeling of deep respect and admiration for the courageous and intelligent way the Indian government is attacking its many problems. There is also a feeling of satisfaction that the technical skill of public health technicians from the United States is helping improve the health and welfare of Indian nationals.

As in other Asiatic countries, the principal health problems are safe water, sanitation, malaria, filariasis, and parasitic infections. The first joint attack on disease by the Indian government and the United States Technical Mission was on malaria. Two million people were dying each year from this disease, and an estimated one hundred million cases were occurring each year. "Heroic" is the adjective to apply to the malaria program jointly carried on by the Indian and the American public health personnel. Today, they anticipate wiping out malaria. Two hundred and ten million of the 350 million people in India live in control areas. Today some 135 malaria control units are operating in India.

While in New Delhi I had the privilege of visiting the world famous Malaria Institute and of watching Dr. Jaswart Singh, director, perform his famous diagnostic test for malaria. Four minutes to diagnose malaria! At the institute the many maps, charts, and other visual representations of malaria in India revealed how great the problem has been and how far India has come in controlling the disease. Now a parallel program is being carried on to control filariasis.

The present major health focus in India is on environmental sanitation. During 1955 they will start 100 programs with each program encompassing 300 villages with the goal of three safe wells for each village—90,000 wells! Prior to this program the villages did not have safe water supplies. Some 27 well-digging rigs have been provided by the United States Technical Mission to India. In connection with this program everyone who works on it will be a health educator.

As was mentioned, cultural patterns frequently stand in the way of improving sanitation. In India the cultural attitude toward odors and sitting over the excreta of others complicates the building of toilet facilities. Therefore, a latrine must be designed that meets sanitary requirements and yet that does not violate folkways. The question of cost is also a great problem in view of the extreme poverty of the people. At the present time an Oriental squat plate with a water seal that can be supplied by the government at a cost of seven rupees ($1.40) seems to be the answer from a sanitary viewpoint, cultural outlook, and financial outlay. The construction can be handled by the villagers and it is hoped that through a pride of ownership, developed by building this sanitary facility, its use will be increased.

Cementing all health and cultural betterment programs in India is the Village Development Program. Eighty-five per

cent of the Indian population is involved. My visit to the Sonapet project and the village of Rai was a highlight in my stay in India—Rai, the first village in the area with a covered water supply! It was started by a gift of $400 from the Glenn Burney Women's Club in Maryland to make life better for the women of Rai. I still recall vividly the slender women and small children carrying water jugs on their heads, the rags children wore for clothing, the flies crawling around the eyes of babies, the open sewage ditches in the narrow streets, the dung cakes drying for fuel, power lines on the horizon, and jet planes overhead.

The key person in the village development program is the "village worker" who is not a specialist in any sense of the word, but is considered a guide or village companion. These multipurpose workers have a high school education supplemented by an initial training period of four weeks followed by continual on-the-job guidance after placement in a village. The brief orientation training covers the general philosophy, approach, methods, and basic technics of village work, together with some basic knowledge of extension methods, some instruction in agriculture, public health and sanitation and social education. (On several occasions I heard the statement made that the greatest contribution we Americans may have made to India was the "extension concept" rather than material things.) There is sound reasoning back of providing only meager training for these village workers: they will not be too much above the level of the villagers. These village workers know that Indian villagers are suspicious of officials, specialists, and outsiders because over the years outsiders have always taken things away from the village, rather than improved life for them. The villagers' experiences with tax collectors, military service, and colonial government officials have left them poorer. It will take time to overcome this suspicion and convince them that the village worker has come to help —not exploit—them. Improvement in Indian village life will be slow, but it is soundly conceived so that the cultural pattern will not be thrown into confusion with the resulting dislocation of the villager.

The high illiteracy rate—estimated at 85 per cent of the population—complicates all problems. Schools are being established, but at the present time school health education is unknown. The health education personnel in the United States Technical Mission is serving as a liaison between the health program and the community development program. They are producing visual aids, such as films, posters, flannel boards, and pamphlets that can be used in villages with both adults and children. I would like to mention especially a film that has been made on diseases of the eye common to India. The film dramatically portrays how Indian folkways spread untold eye disease and blindness.

One leaves India well aware of her tremendous problems, but having had the opportunity to see what is being done to change things, one comes to feel that the Indian professional people are making a heroic and unspectacular effort to mitigate their problems. There is a great need for the people in the Western part of the world to learn to be patient with the slowness of the change and to be willing to make available Western technical skill to the degree welcomed and in a manner which will result in acceptance.

Pakistan

In Pakistan the point of reference, in all matters, is the date of "partition," 1947, when Pakistan was established as a separate nation of Moslems. The chaos and violence of this period still critically affect the lives of the present

citizens of Pakistan. The problem of absorbing into the life and economic structure of the nation the Moslem refugees and provide housing, decent or otherwise, for the millions who fled to Pakistan from India is a staggering problem. Each day it grows: 150 refugees a day are still coming into Pakistan. Until one has visited refugee camps in both India and Pakistan, one does not understand the hatred, the bitterness, and the violence that accompanied partition, and the depth of feeling that presently exists.

In the field of health partition caused new problems that greatly increased the already present hazards of malaria and diseases related to environmental sanitation. When India and the present two parts of Pakistan were considered a single unit as a British possession the majority of the nurses were non-Moslem. At the time of partition these nurses left Pakistan "en masse"—only 379 nurses remaining in the whole country. For help in this emergent situation the Pakistan government asked for aid from the United States in establishing a nurses' training program. The World Health Organization was also asked to help, and there is a close working relationship between the two. Today Pakistan has a Nursing Council to prescribe uniform standards for the education and the training of nurses, midwives, and health visitors, and to supervise examinations and organize registration. Since 1947 some 313 nurses have been trained; yet there are only 683 in Pakistan—one nurse to 100,000 population.

There are some encouraging developments in school health education in Karachi. I had the opportunity of talking with the first school physician in Pakistan. He was appointed in December, 1954, and plans to start school health work first in the secondary schools of Karachi where 25,000 students are enrolled. Presently, there is a vigorous campaign to vaccinate children against smallpox, and some 5,000 are vaccinated each month. A program of BCG vaccination is to be started which will be preceded by tuberculin testing. An in-service training program of teacher observation of the school child is to be inaugurated and a health habit card is to be developed as an aid to the teacher. So an excellent start is being made in school health. It should be mentioned that physical education and physiology are taught in all schools, and teachers are trained at two colleges of physical education—one for men and one for women.

Since partition there has been a sudden realization of the value of education. There are about three million children of primary age in Pakistan of whom an estimated one million are attending school. This sudden influx of students imposes a heavy burden on finances, facilities, and staff. The problem is further complicated by the acute need to improve the educational competency of the staffs of the teacher education institutions. The major emphasis has been on improvement in the teaching of the academic subjects, especially by the use of audiovisual aids. At a gala dinner meeting closing the school year I had the opportunity of addressing the graduating students and the alumni who had returned for the occasion.

In Pakistan great emphasis is being placed on the Village Agricultural-Industrial Development Program, much of the work of the United States Mission to Pakistan being centered around its improvement. The village workers are again the key figures and their training and supervision are of great importance. In West Pakistan there are six training centers with three in East Pakistan. Before a trainee is accepted he is given a medical examination and an x-ray where local facilities permit.

As these facts are reported, I remember the poverty and ramshackle refugee camps, the splendid white buildings of

the new city being built outside of Karachi for refugees. I see the shining eyes and matted hair of these refugee children, the meat and other foodstuffs exposed to dust and flies, and the beautiful ornamented red Pakistani shoes.

Iraq

The very sound of the name Iraq produces mental pictures of Bagdad, mosques, and flying carpets! Arriving in Basrah by plane in the early morning hours was almost like arriving on a flying carpet. The sheiks with their flowing robes and headdress also seemed a part of the accepted mental picture, but the women completely enveloped in their black veils were a distinct shock. Information coming from these Middle Eastern countries indicates that women have been emancipated from purdah so one is unprepared for the hundreds of women wearing the black flowing veil. Even the Iraqui women public health workers wear them when out of the office and when making home visits!

Here in Basrah is located the first local Health Department in Iraq. It was established by the Iraq Ministry of Health in cooperation with the United States International Cooperation Administration. The plans were made for this Health Department two years ago as part of a five-year plan for the improvement of health in this area. It was planned also to serve as a facility for the training of personnel who would staff similar health departments elsewhere. Formal training courses are provided for health visitors, sanitarians, and health educators. At the time of my visit in April the first training classes for health visitors and sanitarians had started.

The term "health visitor," as it is used in Iraq, needs to be explained. These girls have the equivalent of a high school education and then one year of training for the position. The training includes nursing, sanitation, personal hygiene, school and child health. The health visitor will be used in Iraq instead of nurses because of the unfortunate connotation associated with the name "nurse." When the women of Iraq were emancipated the first women to leave the home went into nursing, and because of the strong feeling that it was immoral for women to be in public life the nurses were classed with prostitutes. Needless to say, girls shun nursing as a profession, and fathers prohibit their daughters from taking nurse's training. Recruitment of girls to take the training for health visitors is extremely difficult because of cultural disapproval and also because such jobs are not presently in the government civil service structure. Government positions are rigidly classified as to training, promotion, and salary.

Another indication of the cultural attitude toward women relates to making home visits by health visitors. Two girls must always go together, since fathers and brothers would consider it immoral for a girl to go into a strange home alone. Even the Health Department building is closely watched because men and women are there together.

Health instruction in the schools is better developed than one would expect. The material presented relates largely to the structure and function of the human body and topics related to sex education are included, which one would not expect. The communicable diseases prevalent in Iraq are studied, and special emphasis is placed on diseases of the eye, malaria, and venereal disease. It was a real surprise to find in the Girls Secondary School in Basrah American-made models of the human torso and models of body organs. Student-made plaster models of systems of the body were especially good. In the production of pamphlets and posters the schools are turning to the FOA Health Education Division of the United States in Iraq for

help. Health films, too, are being provided for the schools.

With respect to teacher education in health, all secondary teachers are required to take three years of hygiene. The teacher prepared in biology is the person assigned to teach health in secondary schools, but physical education is taught by specialists. While the secondary schools have a definite program in health instruction, on the elementary level the program is not well established.

In September of this year the first School Health Conference in Iraq was held in Basrah—a milestone! In April when I visited Iraq the Health Education Division of the Health Department was in the process of securing police clearance to hold the Health Workshop Planning Committee meeting. In Iraq such close control is kept that it is necessary to have a police permit to hold any type of group meeting, and health education is no exception. This conference was to be a workshop type which was a radical departure from current educational practice, for the Middle East countries still teach by memorizing pages of material from books, listening to lectures, and passing examinations. Both the procedure and subject of the conference were new and untried, so what has become routine procedure with us was an adventure in health and education in Iraq.

The training program for sanitation was well under way at the time of my visit. One class of 11 had just finished their six months' classwork and were involved in the six months' training experience and a new class of 18 was starting. A new class is to be started each six months. Their training curriculum includes administration, anatomy and physiology, hygiene, sanitary engineering, epidemiology, insect and rodent control, and health education—all related to health and sanitation in Iraq. The work of these sanitarians will improve not only community sanitation, but school sanitation as well. The basis of a working relationship between teacher and sanitarian has been laid in a mimeographed publication titled "Suggestions on Rural School Sanitation."

The outstanding work of the WHO in tuberculosis control should be mentioned. To date some 600,000 people have been tuberculin-tested with a very high percentage of positive reactions. In the age group, 7–14 years, 35 per cent had positive reaction, while those over 15 years showed 72 per cent positive. In some of the Lewas the rate was an astonishing high of 88.4 per cent. Presently, some 200,000 people have been vaccinated with BCG. A map of Iraq showing the incidence of tuberculosis revealed that the heaviest incidence of the disease followed the itinerary of the pilgrims across Iraq from Tehran to Mecca.

Much is going on in Iraq: home economics courses, well-baby clinics, and village school projects are being set up. While the problems of Iraq are many and acute, the large income from oil makes possible many programs by the Iraq Ministry of Health in cooperation with WHO and the ICA.

Lebanon

The mention of the name "Lebanon" recalls the Biblical phrase "Cedars of Lebanon." To my mind comes the deep blue of the Mediterranean, the European architecture of Beirut, the Bedouins with their sheep, and trying to buy a dress by means of the English, Arabic, and French languages.

In attempting to find out what is being undertaken in school health in Lebanon, one is confronted by a bewildering maze of school structure that must be penetrated before any information becomes available. This complex school situation also makes it impossible to say that anything is typical or uniform throughout the schools. Lebanon epitomizes all of the school problems

found in the other countries visited.

First, it must be remembered that historically the area was predominantly Christian in the beginning, then under Arab domination until 1099 A.D., when the Crusaders Kingdom of Jerusalem embraced most of this area. Today, Lebanon is an Arab country, the population almost equally divided between Moslems and Christians with each secular group seeking perpetuation through education. Always in education a careful balance between Moslem and Christian must be maintained.

The date 1946 marks the emergence of Lebanon from the French mandate as the first Arab country with a democratic, republican form of government. Due to the French influence, Lebanon now has schools with two very different educational philosophies and structure, each culminating in an institution of higher learning. These are Saint Joseph's University and the American University at Beirut. There is the French-Lebanese type of educational structure with the French oriented curriculum of the 1920's strictly adhered to. Here, progress is made on the basis of examinations at each level so students study for the examinations instead of pursuing studies of practical value. Paralleling the French-structure schools is the American-British type of educational organization that carries on a child centered, community oriented education program similar to educational procedure, as we know it in the United States.

The education of Lebanon is not only complicated by dual religious viewpoints and dual educational philosophies, but by two entirely separated education systems. One system of education is financed by the Lebanese government and a second system is financed by private funds. The complexity of education (interrelated to economic, political, religious, and cultural structures) provides the basis for conflicts, efforts to maintain and promote vested interests, and the undercutting of efforts to change and improve education. It is in this setting that American educators and public health personnel have been invited to advise on health and education by the Lebanese government. The work of the American Mission has been limited to working with the public schools which are financed by government funds. However, at the present time the minister of education is considering proposals for some joint work with privately financed schools.

An agreement by the ICO and the Lebanese government made possible school health conferences. Fifty teachers from 50 different public schools attended an eight-week, summer, inservice training program in school health. Four regional conferences were held after the summer conference, where 120 teachers had some training in school health. School health has become a most popular and active project because the public school teachers had had no other meetings or conferences of any kind in their teaching experiences. The school health conferences opened new horizons for them and they have learned not only about school health and sanitation but have had the opportunity to learn how to work cooperatively together.

The health program in a pilot school was a radical departure from the Lebanese-French concepts of responsibility of schools to children. A Lebanese nurse and a part-time Lebanese pediatrician were employed and each child had two physical examinations a year with follow-up home visits. These were especially appreciated by the Lebanese in low-income brackets, since this was the first time anyone had exhibited interest in their children's health and welfare. As a result of these home visits, some drastic changes in home sanitation and health consciousness occurred.

Many other significant efforts to im-

prove health are being undertaken—among them, a public health laboratory in Beirut to provide diagnostic services for Lebanese physicians and research on communicable disease; a demonstration urban health center to serve also as a training center for the American University undergraduate students in public health, sociology, education, and related fields; the Makassed School of Nursing; and finally the rural health centers that were established, but are now closed due to the conflict of interests. In spite of the closing of the rural health centers, improvement in rural sanitation and water supply fortunately is going ahead.

Turkey

Flying into Istanbul is again like flying on a magic carpet. Minarets and domes of the mosques are unbelievably beautiful. The blue of the Bosporus and the Golden Horn with gleaming white, sea-going ships anchored in the heart of the city are breath-taking. The vigor and physical strength of the people give one an immediate sense of a dynamic society. Turkey is a nation forging ahead.

At the time I visited Turkey the United States did not have a bilateral agreement providing help in public health and the schedule of conferences was in the able hands of Ilhami Polater, for 27 years YMCA secretary in Istanbul. Conferences with public school authorities, teacher education administrators, and medical school public health professors provided information on school health. In the public schools there is an extensive immunization program against smallpox, diphtheria, and typhoid by the Ministry of health. The Turkish Tuberculosis Association gives the BCG immunizations and does the follow-up in home calls.

Health instruction and physical education are both required in the junior and senior high schools. At the Girls' Junior High School in Istanbul I saw the only class on my trip of girls' physical education. They were suited up in white blouses and shorts. In this junior high the principal told me with great satisfaction that this fall they would become the first school in Turkey to use the modern, community oriented project type of school program. This was brought about by their Parent Teacher Association securing special legislation through their state legislative body for the pilot program.

One has only to visit Turkey to see that they have better sanitation and water supply than most Asiatic countries. The driving energy, the hustle-bustle of their cities make an American feel at home and akin to the Turkish people.

In closing I want to pay tribute to the Americans representing the United States in our health and education technical assistance programs. We are well represented, and we who remain at home owe them a debt of gratitude for their willingness to work in difficult situations and live in an environment that endangers their health. They are truly the unsung health heroes of today.

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An Apparently Water-Borne Outbreak of Infectious Hepatitis

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The thoroughness of this successful epidemiologic study of an explosive water-borne outbreak of infectious hepatitis will impress the reader who has had any experience with outbreaks of intestinal disease.

During the period of the outbreak described in this paper the United States Forces in Austria held a unique position: they were not, in the accurate sense of the term, an "occupying" force and did not exercise complete control over the Austrian government in the United States zone of Austria as is usually done in occupied countries. In the efforts to secure a free government for Austria, cooperation with local and federal officials was paramount, and the troops stationed there were in a status as "paying guests," although not subject to certain internal regulatory legislation.

Austrian health agencies are organized on a county (Bezirk), state (Land), and federal level. Financial support, unfortunately, for communicable disease control and the supervision of environmental sanitation is small, and the local health agencies are inadequately staffed. In addition, infectious hepatitis is not "reportable" by private physicians, and its epidemiologic importance as an infectious disease is only slowly being realized. The focus of the outbreak, Badgastein, in the Austrian Alps, is a resort of great economic importance and the hotel owners there are able to exert considerable political influence.

The investigators were primarily charged with the protection of the health of the United States personnel stationed in Austria, and, although cooperation with civil Austrian health authorities was entirely satisfactory, certain limitations on their activities and authority were inherent and understandable under the circumstances described. The importance of infectious hepatitis in a military population, which has been thoroughly described by others,[1-3] plus the opportunity to examine an outbreak in a small discrete group, led the authors to undertake this investigation.

Preliminary Investigation

The incidence of infectious hepatitis in the military and civilian population served by the United States Army Hospital at Salzburg has been in recent years relatively low. No detectable outbreaks have occurred, and it has generally been thought that all cases were the result of person-to-person spread, probably through contact with unrecognized cases. Table 1 shows the past experience in this population for the first three months of the years 1952–1955.

On February 24, 1955, two patients

Table 1—Cases of Infectious Hepatitis in Military and Civilian Personnel Served by U. S. Army Hospital, Salzburg

Month	1952	1953	1954	1955
January	1	4	6	4
February	4	2	3	6
March	4	3	2	21

were admitted to the Army Hospital at Salzburg with a diagnosis of infectious hepatitis, and in the following four days, four additional cases were admitted. With the exception of two, all cases had a dissimilar status in the command and there appeared to be no link between them that would indicate a common exposure to infection. There seemed to be sufficient evidence to assume that the usual sporadic cases of hepatitis had, by chance, occurred coincidentally within a five-day period. The accomplishment of routine procedures normally employed in the control of infectious hepatitis soon proved this assumption to be false.

On the staff of the Salzburg Army Hospital is an Army health nurse, whose duties include the preparation of an "individual epidemiologic case history" for each diagnosed case of certain specified communicable diseases of epidemiologic interest. These case histories include information regarding the patient's activities and contacts, past immunizations, a clinical resumé, laboratory findings, and date of onset of symptoms. Through the preparation of these histories for the six cases of hepatitis, it was discovered that all had participated in one of the Army-sponsored ski trips to Badgastein, during the period January 21–23, 1955.

The sponsored ski trips are usually composed of from 40 to 100 persons who travel together by train to a European winter resort, reside at one or two hotels reserved for the purpose, and eat common meals. Under such circumstances, it seemed a distinct possibility that the infection had been acquired at the resort, and that additional cases could be expected. Consequently, it was determined that 82 persons had participated in the trip, staying at two hotels and taking their meals there. An appropriate questionnaire was prepared and completed for each participant, obtaining information regarding eating habits, both en route and at the resort; hotel; the use of milk, cream, or water; recent symptoms associated with hepatitis; immunizations, injections, or transfusions in the preceding six months; and history of previous jaundice.

By March 3, four more patients had been admitted to the hospital with jaundice, and in the following two days, five more were admitted as a result of clinical and laboratory screening, described below, bringing the total to 15. Finally on March 15, the last case that could be attributed to this outbreak was admitted. This patient had not participated in the sponsored trip on January 21–23, but had visited the resort on January 15–16, and again on January 29–30. On both occasions he had stayed at the same hotel, one of those used by the sponsored trip.

Clinical Aspects

A rare opportunity presented itself for a clinical study of an entire group that had been exposed to the same environmental hazards which apparently had caused the initial cases of infectious hepatitis. Ten apparent cases of the disease were admitted to the hospital before the screening procedures were undertaken. All these presented unequivocal clinical and laboratory evidence of infectious hepatitis. Leptospiral agglutinations on members of this group were negative, ruling out the possibility of Weil's disease, a distinct possibility in this part of the world. Laboratory screening procedures done on the remaining exposed individuals, of which

Major Peczenik (formerly preventive medicine officer, Office of the Chief Surgeon, Hq. U. S. Forces in Austria), is chief, Preventive Medicine Service, Fort Jackson, S. C. Captain Duttweiler and Major Moser are with the Medical Service, U. S. Army, Europe. They were formerly sanitary engineer, Office of the Chief Surgeon, Hq, U. S. Forces in Austria, and chief, Medical Service, U. S. Army Hospital, Salzburg, Austria, respectively.

65 of 73 were available, produced six additional cases.

In view of somewhat limited laboratory facilities, it was decided to use the bromsulphalein excretion (per cent retention 45 minutes after injection of 5 mg/kg body weight) and icterus index (photometric measurement) as screening procedures on each exposed individual, with the exception of the 10 frank cases, regardless of history or physical findings. Values for BSP retention over 3.5 per cent or icterus index over 7.0 units were arbitrarily adopted as indication for follow-up liver battery. Strongly suggestive clinical findings in the presence of normal initial BSP or icterus index were also considered an indication for follow-up liver battery. This included cephalin cholesterol flocculation, thymol turbidity, Van den Bergh, and alkaline phosphatase. Cases in which the clinical and laboratory evidence correlated were hospitalized immediately. Other cases with either suggestive clinical or laboratory findings were advised to start bed rest at home and were rechecked at one-week intervals until subsidence of suspicious findings.

Of the six additional cases uncovered, the clinician felt that hospitalization was mandatory in five on clinical grounds alone. In the remaining case (No. 15) all symptoms were denied and there were no objective findings. However, liver function tests revealed BSP 7.5 per cent and icterus index of 7.0 units. Subsequent studies after one week at home in bed revealed significant changes in function test results. The clinical and laboratory findings of this case and the other cases in this group are shown in Table 2.

It is highly probable that some of these six cases would have remained undetected, or would not have come under medical care until the illness had become advanced. The patients in this group were either asymptomatic, or for one reason or another paid little attention to their symptoms.

There were 59 subjects who were screened and considered to be free of infectious hepatitis. Of this group 29 (49.2 per cent) had no signs or symptoms while 30 (50.8 per cent) complained of one or more symptoms and revealed one or more signs of the disease. Nineteen (32.2 per cent) pa-

Table 2—Clinical and Laboratory Findings for Six Cases Detected by Screening Procedures

Case No.	Age	Race	Sex	Malaise	Anorexia	Fatigue	Dark Urine	Light Stools	Liver Palpable	Liver Edge Tender	Flat Percussion Tender	Icteric Sclera	BSP (45 min) Per cent	Icterus Index	Cephalin Flocculation 24 hrs	Cephalin Flocculation 48 hrs	Thymol Turbidity	Van Den Bergh Direct	Van Den Bergh Indirect	Alkaline Phosphatase (B.U.)
11	39	W	F	1+	1+	2+	+	+	+	+	+	+	53.5	22.0	4+	—	20.5	3.9	2.1	8.3
12	23	W	M	1+	0	1+	+	0	0	0	+	0	0.0	8.6	3+	—	6.0	0.3	0.4	3.9
13	39	W	F	1+	3+	3+	+	+	+	+	+	+	34.5	9.6	4+	—	14.8	1.1	1.5	8.5
14	12	W	M	1+	0	1+	0	0	+	+	+	+	42.0	10.7	4+	—	23.0	5.4	2.6	8.1
15*	43	W	M	0	0	0	0	0	0	0	0	0	7.5	7.0						
													13.5	17.6	2+	3+	13.0	0.3	1.1	3.6
16	35	W	M	2+	3+	3+	0	0	+	+	+	+	5.4	7.0	0	0	5.9	0.0	0.4	5.1

* Borderline liver function (first line) and entirely asymptomatic on initial screening. One week later complete liver battery (second line) confirmed this a case.

tients in this group were placed on one-week bed rest at home due to suggestive clinical evidence and borderline liver function studies. At the end of this period all liver function tests were negative and there was a significant diminution of clinical findings. The high incidence of positive clinical findings may be attributed to the anxiety that was engendered by the unusual attention and procedures to which this group was subjected. In the more susceptible members of the group, this may have tended to color the objectivity in evaluating their own symptoms. However, several cases that fell into the negative group aroused strong clinical suspicion of infectious hepatitis which was not confirmed by hepatic function testing. While the subjective element regarding this group has been emphasized, there still remained a few cases in which the clinician experienced the "feeling" that a subclinical process was active, which conceivably was not being detected by the function tests utilized.

Characteristics of the Outbreak

The course of the outbreak is shown in Table 3 by date of onset of symptoms as determined during investigation rather than by clinical history. The cases during the period February 18 through March 3 occurred in participants of the sponsored ski trip, while the case on March 8 (No. 16) occurred in the individual who visited the same hotel one week prior and one week after the sponsored trip.

Since the date of exposure to the infection for the first 15 cases falls in the period January 21–23, 1955, it is readily seen that the incubation period ranged from 27 to 40 days, with a mean incubation period of 33 days. It was assumed that the last (16th) case had been infected in the period January 29–30, 1955, giving an incubation period of 38 days. The length of incubation of these cases appears to be long; however, the mean incubation period falls within the upper limits of that stated by

Table 3—Course of the Outbreak

Case No.	Status	Sex	Age	Date of Onset of Symptoms 1955	Incubation Period (Days)
1	Military dependent	M	14	Feb. 18	27
2	Army civilian	F	26	Feb. 18	27
3	State Dept. dependent	F	44	Feb. 19	28
4	Army civilian	F	29	Feb. 19	28
5	Military	M	22	Feb. 23	32
6	State Dept. civilian	M	28	Feb. 23	32
7	State Dept. civilian	F	25	Feb. 23	32
8	State Dept. civilian	F	33	Feb. 24	33
9	Military	M	24	Feb. 24	33
10	Army civilian	M	28	Feb. 25	34
11	State Dept. civilian	F	39	Feb. 26	35
12	Military	M	23	Feb. 28	37
13	Army civilian	F	39	Feb. 28	37
14	Military dependent	M	12	Mar. 3	40
15	Military	M	43	Mar. 3	40
16	Army civilian	M	34	Mar. 8	38*

* Probably exposed to infection January 29–30, 1955.

Stokes [4] for viral hepatitis A (20–35 days).

Table 4 shows the attack rate of hepatitis for the entire group of 83 (all Caucasians) who visited Badgastein, with a higher rate for the male members.

Analysis of the questionnaires prepared for the members of this group indicated, as shown in Table 5, that 14 of the first 15 patients stayed at one hotel, Hotel A, or its annex, while all 15 ate most of the scheduled meals there during the week-end trip. Thirteen of the first 15 recalled using the tap water in Hotel A. The final (16th) case stayed at Hotel A, where he ate only one meal, a "continental" breakfast (coffee and rolls), and drank the tap water. None of the 16 patients had received any whole blood or plasma in the preceding six months, and only eight had received immunizations or injections during that period. Those who had received immunizations had been inoculated at various times and places. This was considered sufficient circumstantial evidence to rule out the possibility of serum hepatitis.

It then was postulated that the infection had been acquired at Hotel A, probably through a common vehicle, and that it was necessary for the source of infection to have persisted for at least seven days, if the last case had been infected in the same manner as the other 15 cases.

Table 4—Total Incidence of Hepatitis

Group	No.	Cases	Per cent
Male	40	9	22.5
Female	43	7	16.3
Aggregate	83	16	19.3

Table 5—Group Habits *

Characteristic	Total Group	Cases
Quartered at Hotel A including Annex	69	15
Quartered at Hotel B	11	1
Ate at least one meal at Hotel A	80	16
Ate at least one meal at Hotel B	7	1
Ate at least one meal at other place	34	4
Drank milk	6	0
Used cream	26	7
Drank tap water at Hotel A	53	14
Drank tap water at Hotel B	4	0
Drank tap water at other place	3	0
Received whole blood or plasma	0	0
Received immunizations	35	8

* For convenience, the 16th case is included in this group, although exposed to infection on a different date. Three members (not cases) of the group could not be interviewed for various reasons.

Possible Methods of Infection

In view of previous work,[4] no consideration was given to the possibility that this outbreak was air-borne, nor that fomites were involved. Direct transmission of the infection from person to person was thought to be unlikely because of the explosive nature of the outbreak and the manner of infection of the 16th case. There was no evidence of possible insect vectors.

Since all 16 cases had eaten at least one meal at Hotel A, it was felt that there was an excellent possibility that the outbreak was food-borne. Investigation showed that food-handling practices and equipment of the kitchen at Hotel A were extremely poor with regard to even the most basic standards of sanitation. It appeared entirely possible that an enteric infection in any of the kitchen personnel would be easily spread to the patrons. Laboratory examination of random food specimens indicated gross contamination with Escherichia coli, Staphylococcus aureus, and Staphylococcus albus, which is indicative of the general level of sanitation existant in the kitchen.

Both patrons and employees of Hotel A had been treated frequently by a local

physician for diarrhea during the preceding two years, and two employees had become ill with jaundice on February 15 and on March 6. Because of the dates of onset of these two cases, they were considered to have been exposed to the same source of infection as the 16 American cases. A 45-minute bromsulphalein test was done on the remaining ten food handlers, with negative results. Only one case of hemolytic jaundice or gall bladder disease was incidentally discovered. No pathogens could be isolated from blood agar plates or rectal swabs in meat infusion broth.

Although efforts to locate the source of infection in a food handler at Hotel A were unsuccessful, it was felt that a food-borne outbreak was not outside the realm of possibility. In the light of evidence presented below, it was apparent that the outbreak was not food-borne.

None of the cases could remember drinking milk during their visit to Badgastein, but the possibility that the causative agent had been spread through the use of milk, perhaps in food products, was not discounted. Investigation revealed that all milk for the city of Badgastein is shipped in bulk from a pasteurizing plant in Bischofshofen. The milk is repackaged at the Badgastein milk center into metal cans for delivery to the many hotels. These cans were found to be handled in an extremely poor manner throughout their use, practically negating the satisfactory pasteurization process. Laboratory examination of specimens of milk found in the kitchen at Hotel A showed the presence of Streptococcus viridans, E. coli, and S. aureus. Further investigation failed to reveal a possible source of infection. Since only very few persons in the entire group claimed to have drunk milk, it was concluded that milk was not primarily involved in this outbreak.

Hotel A receives three different water supplies: thermal water, used for therapeutic baths, is controlled by the city; drinking water, which is supplied metered by the city; utility water, derived from a private mountain spring and which is used for general cleaning and for flushing toilets.

Thermal water, derived from natural hot springs, is piped at a fee to each hotel, and a separate system in Hotel A conveys the thermal water to the various special baths. Samples of this water were found to be satisfactory.

The public drinking water supply of Badgastein is derived from four springs located in the mountains near where the city is situated. These sources were developed and the municipal system constructed in the 1920's to replace the growing complex of private sources used by each of the many hotels. The water has at all times been found to be satisfactory by the Austrian health authorities, but no means of disinfection is employed. At Hotel A, the service line is connected to a manifold which has four branches supplying water to various sections of the hotel, including the kitchen taps and a lavatory in each room.

Utility water for Hotel A is supplied by a private mountain spring, the water of which is piped to a reservoir and thence to the hotel. This source was used for drinking water prior to the construction of the municipal system. At the hotel, the utility water service line is connected to another manifold, branches of which are connected to those of the drinking water system manifold, as shown in Figure 1. Only one of the branches is intended to supply the water closets through the separate utility plumbing system. The inherent dangers in the two cross-connected systems are readily apparent.

A bacteriologic examination of 19 specimens of the so-called "drinking" and "utility" waters taken on March 8, 1955, showed, without exception, pres-

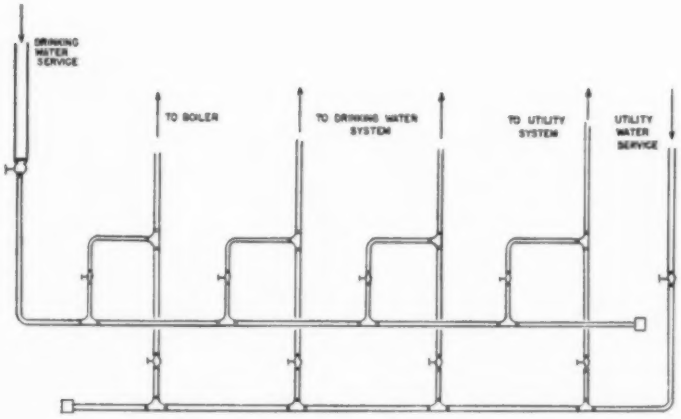

Figure 1

ence of coliform organisms; standard plate counts ranged from 60 per ml to "too numerous to count." Chemical and physical examination of similar specimens showed strong evidence of pollution, and proved that the separate utility and drinking water systems in Hotel A were supplying identical waters of poor quality. Table 6 gives pertinent results of these examinations, showing the indistinguishable chemical characteristics of the two waters, and the varying characteristics of the city and thermal waters. Additional examinations of specimens of the municipal water supply taken from other locations indicated that this supply was of satisfactory bacteriologic quality. It was assumed, therefore, that the entire hotel was supplied with the utility water, and not public drinking water, during the period of January 21–23 and January 29–30 when the 16

Table 6—Chemical and Physical Examination of Water Specimens

Data	Sample A	Sample B	Sample C	Sample D
Location	Hotel A	Hotel A	Hotel X	Hotel A
Type of Water	Drinking	Utility	City Drinking	Thermal
pH	6.4	6.4	7.5	7.8
Ammonia Nitrogen	0	0	0	0
Nitrite Nitrogen	0	0	0	0
Nitrate Nitrogen	15.0 ppm	15.0 ppm	3.0 ppm	0.8 ppm
Total Hardness	40 ppm	40 ppm	20 ppm	65 ppm
Total Solids	393 ppm	395 ppm	112 ppm	388 ppm
Volatile Solids	158 ppm	160 ppm	60 ppm	120 ppm
Non-Volatile Solids	235 ppm	235 ppm	52 ppm	268 ppm

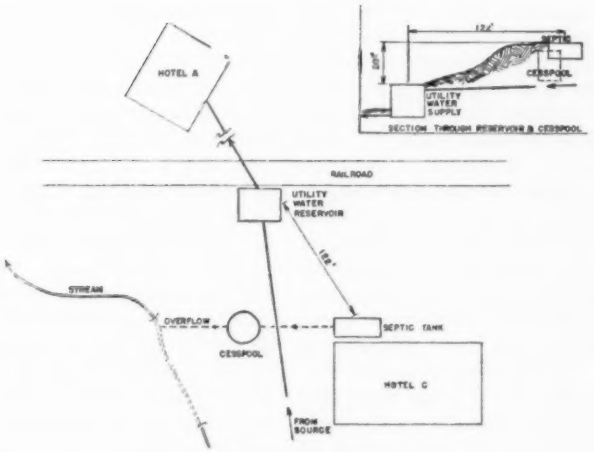

Figure 2

American cases of hepatitis were exposed to the infection.

Before it was possible to investigate the source and reservoir of the utility water which were covered by many feet of snow, an intensive search for cases of hepatitis in Badgastein was initiated through the local Austrian health officer. It was hoped that the source of the infection would be discovered by asking all physicians in the city if they had seen any cases during the period from January 1 to February 28, since hepatitis is not, in Austria, a reportable disease. These efforts met with no success.

Investigation of the utility water system was begun with the advent of warmer weather, and it was determined that a septic tank serving Hotel C, was located approximately 20 feet above and 122 feet distant from the reservoir. The proprietors of Hotel C were interviewed and remembered that a guest during the month of January had become ill with jaundice and remained in bed for the entire period of his stay. Their records showed that this guest had arrived on January 17, 1955, and had departed on January 30. (The American group had stayed at Hotel A January 21–23.) They further recalled that this guest had become jaundiced on January 21 and that he had been seen by a local physician who had made a diagnosis of hepatitis. When visited, the physician confirmed the diagnosis and admitted he had forgotten to inform the health officer at the time of the search for additional cases. It appeared likely that this guest had excreted the hepatitis virus throughout the period January 17–January 30, and that the virus had found its way into the utility water system.

The utility water reservoir is constructed of stone masonry with a fixed concrete roof, equipped with a covered manhole and an open vent. Leakage of the reservoir had caused damage to the adjacent railroad bed (Figure 2) during the previous year, but only the wall facing the railroad had been grouted. A cast iron main with bell-and-spigot joints, laid in 1909, carries water from the mountain source to the reservoir. Effluent from the septic tank is discharged through a cast iron line, which crosses over the water main, to a

cesspool approximately 10 feet in diameter and 16 feet deep, the liquid then leaching into the soil. The area has a fairly steep gradient, and is composed of fissured limestone overlain with a layer of humus with fine and medium gravel. There is an abundance of ground water; a pipe line carrying thermal water in the same area was reported to have been "jacketed" by cold ground water flowing along the outer sides of the pipe in sufficient quantities to reduce the temperature of the thermal water to a point rendering it unusable. In view of the ground conditions, known faults in the reservoir's construction, the age of the water main and its joints, and the corrosiveness of the ground water, together with the proximity and higher elevation of the septic tank and cesspool, it appeared distinctly probable that water in the reservoir was polluted by sewage flowing from the septic tank or cesspool into the water main, or along the main into the reservoir. In order to determine the precise point of entrance of the polluting sewage, it would have been necessary to uncover the entire main and reservoir; under the circumstances such action was impossible. Bacteriologic examination of a specimen of the water in the reservoir showed presence of E. coli in all dilutions of a standard sample of five 10 ml portions, one 1.0 ml portion, and one 0.1 ml portion.

From the foregoing evidence it was concluded that the 16 American and two Austrian cases of infectious hepatitis had been infected at Hotel A through the common vehicle of the utility water supply, which had been contaminated by the excretions of the jaundiced guest at Hotel C. This method of transmission also accounts for the persistence of the source of infection at Hotel A which permitted the infection of the 16th case seven days after the infection of the members of the original ski trip.

Control Measures

As previously described, efforts were directed toward the early detection of cases through clinical and laboratory screening. Intimate contacts of the cases thus discovered were able to receive prompt prophylactic administrations of gamma globulin sooner than if the cases had been allowed to appear or had remained undiscovered. The social, familial, working, and other intimate contacts of each case were given a dosage of 3.0 ml of gamma globulin intramuscularly. A total of 234 ml were used in this manner, with apparently good success: no secondary cases have been recognized. As a final measure, Hotel A was placed "Off Limits" to all American personnel, and recommendations were made for correction of the defects in the water systems and food-handling practices.

Conclusions

The evidence appears to indicate that this was a common vehicle outbreak, in which the responsible disease agent had been transmitted through a contaminated water supply.

Efforts for the prevention of infectious hepatitis are best directed in the same patterns as those for the prevention of intestinal diseases.

The administration of gamma globulin to certain contacts of cases of infectious hepatitis is effective in preventing secondary cases, and its routine use for all intimate contacts is desirable.

Under conditions of known exposure to infection, clinical and laboratory screening of suspects is desirable, since it will yield a good proportion of additional cases of infectious hepatitis.

Summary

An outbreak of infectious hepatitis in a group of 83 persons, with a total of

16 cases, is described. Evidence presented incriminates a contaminated "utility" water supply as the vehicle. The use of clinical and laboratory screening of the group of suspects known to have been exposed to the infection at a common time is described. Of the 16 cases, six were detected through such procedures. In five of these, there was close correlation between clinical and laboratory evidence. In one there was a negative history and physical findings, but positive laboratory evidence. The value of screening procedures, where possible and indicated, is emphasized as a means of control of the disease.

The apparently successful use of prophylactic administrations of gamma globulin to intimate contacts of cases of infectious hepatitis is discussed.

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Health Council Prepares 1957 Forum

Chairman of the 1957 National Health Forum, sponsored annually by the National Health Council, is Francis J. Braceland, M.D., psychiatrist-in-chief of the Institute of Living, Hartford, Conn. The forum will focus on fostering mental health in the United States with special emphasis on the constructive actions that the 51-member organizations of the council and others can take together. The forum will be held in Cincinnati, March 20 and 21, 1957.

Among those already selected to serve with Dr. Braceland on the Forum Planning Committee are:

Raymond H. Barrows, executive director, National Foundation for Infantile Paralysis, and chairman, NHC Forum Planning Committee
Robert H. Felix, M.D., director, National Institute of Mental Health
E. M. Gruenberg, M.D., Milbank Memorial Fund
Paul V. Lemkau, M.D., director, New York City Community Mental Health Board
John D. Porterfield, M.D., director, Ohio State Departmnet of Mental Hygiene and Correction
Irving S. Shapiro, Ph.D., assistant director, Preventive Medicine and Health Education, Health Insurance Plan of Greater New York
Richard P. Swigart, executive director, National Association for Mental Health

Leona Baumgartner, M.D., health commissioner of New York City, is president of the National Health Council.

A Surface Plating Technic for Determining Bacterial Population of Milk

WALTER L. MALLMANN, Ph.D., F.A.P.H.A., and
SELWYN A. BROITMAN

The simplicity and practicality of this proposed new method—presented before the Coordinating Committee on Laboratory Methods last fall—suggests a wider acquaintance with it and so the paper is published here.

The agar pour plate technic for determining bacterial populations of milk has always been the accepted procedure for determining bacterial counts of pasteurized milk.[1] Burri [2] in 1928 presented a simple test, in which a standard loopful of milk is spread over the surface of an agar slant. It is used as a screening test and gives a rough evaluation of bacterial populations.

In 1952 Tomales-Lebron and Fernandos [3] presented a method of determining bacterial numbers in liquids. This method consists of depositing on the surface of an agar plate known small portions of the solution to be tested, incubating and counting the colonies that develop. The senior author became interested in this procedure in 1953 when it was used for checking bactericidal activity of hypochlorites.[4] After observing the simplicity of the test and the ease of counting, application of the procedure was attempted in areas where dilution pour plates are used. The determination of bacterial populations in milk by this procedure appeared feasible.

Tomales-Lebron and Fernandos [3] recommend that approximately 12 ml of nutrient agar be placed in each Petri dish. The plates are incubated for at least 24 hours and then stored in the refrigerator until used. Prior to use the Petri dishes are inverted in a 35° C incubator for two hours, while the bottoms are raised slightly to allow the evaporation of excess moisture. The test liquids are pipetted to the agar surfaces by means of 0.2 ml pipettes. Plantings of 0.01–0.1 ml can be made. The plates are not disturbed for one hour before incubation.

In a study by Mallmann and Peabody,[5] where an examination of sewage effluent was made, the colonies were evenly spaced over the area covered by the planting when plantings of 0.1–0.4 ml were used. When 1–10 dilutions of milk were placed on the agar surface there was a tendency for the suspended solids to collect at the periphery of the drop. The solids appeared to hold moisture so a confluent growth developed forming a distinct ring around an area containing discreet colonies. Obviously, counts of such a plating would be inaccurate.

A maximum amount of spread of the plantings would be desirable, both to eliminate periphery growths and to obtain a wider spacing of the colonies. A nonionic wetting agent, Triton X–100, was added to the dilution water to decrease surface tension. Varying concentrations of Triton X–100 were added to the buffered dilution water to yield final concentrations of 1–40,000, 1–20,000, 1–10,000, and 1–5,000. Six samples of milk, including pasteurized, raw and pasteurized (that had been incubated at room temperature for 24

hours) were added to the dilution blanks containing Triton X–100 in a series of 10-fold dilutions. One ml quantities, pipetted with a 0.2 ml pipette, were placed on tryptone glucose extract agar drop plates, prepared according to Tomales-Lebron and Fernandos. The plates were examined in 48 hours. The approximate area of each drop was found by determining the average diameter. The maximum increase in area of a 1–5,000 Triton X–100 solution was 30.1 per cent greater than that of buffered dilution water. The percentage increase in area is only slightly greater (2.2) than that of a 1–20,000 solution.

To measure the toxic effect of various concentrations of Triton X–100 on colony growth on drop plates five samples of raw and pasteurized milk were diluted in buffered dilution water containing various concentrations of Triton X–100, i.e., 1–40,000, 1–20,000, 1–10,000 and 1–5,000. One-tenth ml portions in quadruplicate were tested on drop plates containing TGE agar. A concentration of 1–5,000 decreased the bacterial counts 58.8 per cent, 1–10,000, decreased the count 37.7 per cent, whereas concentrations of 1–40,000 and 1–20,000 gave a decrease of less than 5 per cent. Accordingly, a 1–20,000 concentration of Triton X–100 was adopted for the remainder of this study. Using Triton X–100 buffered dilution water an even distribution of colonies occurred on the drop plates and the peripheral build-up was eliminated.

Although in the presence of 1–20,000 concentration of Triton X–100 in the dilution water there was only a slight toxicity on the drop plate, there was a marked reduction in numbers of colonies when pour plates were used. In many cases there was as much as 75 per cent reduction as compared to pour plates made from dilution water not containing Triton X–100.

In the early study of drop plates confluent growth occurred frequently, due undoubtedly to improper drying of the agar surfaces. To check the effect of drying, eight sets of plates were dried in the incubator for periods ranging from one to eight hours. Additional freshly poured agar plates were added to the series and five samples of milk were planted in quadruplicate on the plates in 0.1 ml quantities of 1–10 dilutions of the milk. The plates were incubated at 35° C and counts were made after 36- and 48-hour periods. Pour plate tests were made in duplicate. When drying periods of less than three hours were used the agar surfaces were not sufficiently dry as evidenced by confluent colonies. Counts made on plates dried from three to eight hours did not show any significant variations nor were there any significant differences between the 36- and 48-hour counts.

Having developed what appeared to be a satisfactory technic, tests were run routinely on samples of both raw and pasteurized milk, using the standard pour plate method for comparison. To demonstrate the relationship 57 pasteurized milk samples were checked by standard pour plate technic by a regulatory laboratory. The milks were then tested in our laboratories by the drop plate technic.

The average logarithmic counts were 7,480 for the drop plates and 7,820 for the pour plates giving a ratio of 1 to 1.005. Forty-five samples were in agreement based on a $\pm$ 25 per cent variation, seven samples gave higher counts on drop plates and five gave higher counts on pour plates.

The authors are associated with the Department of Microbiology and Public Health, Michigan State University, East Lansing, Mich.

This paper was presented before a Joint Session of the Coordinating Committee on Laboratory Methods and the Laboratory Section of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 17, 1955.

Procedure—For Use of the Drop Plate Technic

1. Twelve–15 ml of tryptone glucose extract agar is poured into standard Petri dishes.
2. These are dried in a 35° C incubator in an inverted position with the bottom elevated slightly for approximately four hours. For convenience a week's supply of plates may be poured, stored in a refrigerator, and dried prior to use.
3. The agar plates are then divided into four quadrants.
4. Milk dilutions of 1–10 and 1–100 are made in a buffered saline water blank containing 1–20,000 concentration of Triton X-100.
5. Using a 0.2 ml pipette, 0.1 ml of each dilution is delivered to a single quadrant. In this manner two milk samples diluted 1–10 and 1–100 may be drop plated on one Petri dish. These dilutions are suitable for pasteurized milk. For raw milk higher dilutions may be necessary.
6. Care must be exercised in that the pipette should be drawn along the inner rim of the dilution blank to remove any excess.
7. In delivering the drop the pipette is rested on the surface of the agar and is allowed to drain slowly.
8. To prevent the drops from running together, allow at least one hour before moving the plates.
9. When the drop has been completely absorbed by the agar the plates are then incubated in a 35° C incubator right side up. The colonies may be counted in 36–48 hours.

In summary—a method for determining bacterial population in milk using the drop plate technic is presented.

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Florida Poisoning Control Program

What is reported to be the only state that "has a complete group of poisoning control centers serving the entire state" is described in a leaflet prepared by the Florida Chapter of the American Pediatric Society and the Florida Pediatric Society.

A total of 15 poisoning control centers are strategically located in 15 hospitals of as many cities throughout the state. Here are filed the names of 1,500 poison or poison-containing products and the ingredients of each, as well as the names of 400 toxic or chemical poisons, their sources, degree of toxicity, symptoms of poisoning, and treatment. Each center is covered for every full 24-hour day. Here it is expected that physicians will report any new poisons coming to their notice. Here also are reference books on the subject.

In making the announcement credit is given for the help of the Florida State Board of Health and its epidemiologist, James Bond, M.D., and "nationally known poisoning control expert," Edward Press, M.D., field director of the American Public Health Association. Chairman of the Poisoning Control Committee is Robert Grayson, M.D., of Miami Beach.

An exhibit on this state's poisoning control centers was recently shown at a meeting of the Florida Medical Association. Because of a demand for a wider showing, it will be among the scientific exhibits at the 84th Annual Meeting of the American Public Health Association in Atlantic City in November.

Endocrine Disturbances in Malnutrition

SALVADOR ZUBIRÁN, M.D.

Here it is maintained that in malnutrition the tissues are unable to utilize the vitamins and hormones which are indispensable promoters of cellular metabolic activity.

In previous publications we have reported that a large part of the population of Mexico, due to lack of economic resources, lives adapted to a diet inadequate in all respects, but sufficient to maintain the subjects in a state of apparent health.[1-3] A slight reduction in that usual nutritional intake, by as little as 10 or 15 per cent or increased metabolic requirements, easily upsets the unstable equilibrium in which these individuals live and the clinical picture of malnutrition appears. This type of deficient nutrition is common to a large part of the population of the Latin American countries, as is shown by the studies of Guzman Barron in Peru, where the average protein intake per person is 8 gm daily.[4]

Individuals subject to these diets do not show clinical signs of deficiency, nor do the laboratory tests reveal subnormal figures. They can even undergo a considerable amount of physical activity. Insufficient intake is only manifested by a decrease in mental capacity and by lack of ambition.[1, 5] The stature of these people is below average and they have lowered resistance to infection.

The clinical picture produced by this chronic deficit in every component of the diet is quite different from that produced by a lack of one factor or from the picture one would expect from the added signs and symptoms specifically attributed to the deficiency of each of the factors in the diet. Such a diet, deficient in every factor, will affect each cell in the organism and a major part of the organic functions. As a consequence clinical manifestations will appear which should be grouped together under the general heading of chronic malnutrition.

In this sense our concept differs from the prevailing picture of pellagra, a disease caused by a deficiency exclusively or at least fundamentally of nicotinic acid. Lesions of the skin and mucous membranes are present more frequently and are more noticeable, but neurologic, hematologic, digestive and endocrine disturbances are also present. This group of disturbances should not lead us to say that these patients suffer at the same time from pellagra, beriberi, hypoproteinemia, nutritional anemia, or riboflavinosis. I believe it is highly inconvenient to denominate this clinical picture as pellagra for it would be necessary to accept the existence of "pellagra sine pellagra," as has been expressed by some authors,[6] when it occurs without dermatological manifestations.

For this reason, our group, as well as that of the Hospital Infantil in Mexico,[7] avoid the use of strange or misleading names such as kwashiorkor or pellagra, in the case of adults. We believe they are better understood in all of their aspects by the generic name, chronic malnutrition. We also believe these ideas are important since it is well

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This paper was presented before the Food and Nutrition Section of the American Public Health Association at the Eighty-Third Annual Meeting in Kansas City, Mo., November 15, 1955.

known that half of the human race has a deficient diet, which may lead to chronic malnutrition with its complex clinical manifestations.

When the nutritive elements are not had in adequate amounts for a normal cellular life, organic combustion decreases within the cell.[5] All of the cellular metabolic processes decrease progressively until only those absolutely necessary for maintaining life are left. It has been demonstrated that the concentration of proteins in the protoplasm is reduced and that enzymatic activity within the cell decreases progressively.[8–12] These observations indicate that cellular activity is clearly lowered in malnutrition and suggest that there is a decreased demand for, and a decreased utilization of the factors, such as hormones.

There is no experimental evidence to show the inability of the cells to utilize hormones. This concept derives only from clinical observations in malnourished patients, but it has led to the hypothesis that in malnutrition the utilization and the inactivation of hormones are diminished. Although hormones are secreted by the endocrine glands in reduced amounts they are not utilized or inactivated in a normal manner by the tissues and for this reason they reach high blood levels, sufficient to inhibit the pituitary and lead to a clinical syndrome very much like that of panhypopituitarism.[2, 3, 13] This syndrome may also be explained by the fact that as a consequence of the altered metabolic processes the tissues are not capable of responding normally to the effect of the hormones.

Our hypothesis is based on the results of histologic, clinical, endocrine and dietetic studies of 543 adult patients between the ages of 20 and 60 with long-standing malnutrition. In these patients we made a thorough study of the endocrine function and were able to demonstrate a decreased activity of the entire endocrine system.[13] Histologic studies of postmortem and biopsy material obtained in 195 cases of malnutrition, constantly showed atrophy and involutionary changes in the anterior pituitary, adrenals, testes, ovaries, and thyroid glands.

The hormone determinations and endocrine function tests, as well as the clinical studies carried out, showed the existence of marked hypogonadism, manifested in females by breast atrophy, amenorrhea in half the young women and in all cases a low estrogen activity revealed by determinations of urinary estrogens and studies of vaginal smears made in 29 young women and 71 menopausal undernourished patients, even in the presence of advanced hepatic lesions and frank cirrhosis. This hypoestrogenism clearly conflicts with the alleged increased estrogenic activity in malnutrition.[14, 15]

The males were impotent, had decreased libido, and showed marked testicular atrophy. In 90 males, the average excretion of 17 ketosteroids was 3.5 mg, much lower than the 11.7 mg found by us in normal men. Estrogen determinations in 79 per cent of these patients showed figures below normal, independently of the status of the liver function. A low level of adrenal activity is suggested by the decreased excretion of 17 ketosteroids, also found in the female group, where the average excretion was of 2.4 mg per cent and by the other laboratory tests carried out.

The fasting blood sugar levels were lower than 80 mg in 21 per cent of 228 patients. The glucose-tolerance test showed abnormally flat curves in 48 per cent of 75 individuals. The insulin-tolerance test made in 7 subjects showed decreased tolerance in three. The water-tolerance tests showed abnormally delayed excretion in eight of 13 cases. Electrolyte changes were found to be consistent with a lowered adrenal function. Added evidence may be had from

the group of clinical symptoms compatible with adrenal dysfunction.

A decrease in axillary hair was present in 75 per cent of the men and in around 90 per cent of the women. Hyperpigmentation of the skin similar to that of Addison's disease although not as marked was found almost constantly. The high incidence of other symptoms could be attributed to adrenal insufficiency.

In general, it is impossible to decide to what extent these symptoms are the result of adrenal dysfunction or of one or another of the many organic disturbances present in malnutrition. On the basis of the anatomical and functional alterations described we must assume that the adrenals play an important role in the production of the clinical picture.

The information which we have obtained from the studies of thyroid function in our malnourished patients is not sufficient to allow a reliable opinion as to the status of this gland in malnutrition. Although the basal metabolic rates were low in general, we could not demonstrate hypothyroidism inasmuch as the few determinations made with protein-bound iodine and radioactive iodine uptake were within normal limits.

In studies carried out by Gómez and his group in the Hospital Infantil of Mexico, low figures of protein-bound iodine were found in 44 per cent of 100 malnourished children.[16, 17] These figures strikingly rise during the recovery phase.

In only one case we were able to give thyrotrophin followed by an increase in the radioactive iodine uptake and in the protein-bound iodine. These facts may allow us to infer that the decreased thyroid activity found in children and the frank atrophy of the gland found by us in 64 of 131 glands examined, could be due to insufficient pituitary stimulation.

The sum total of endocrine disturbances which we have described constitute a clinical picture which is very similar to that observed in panhypopituitarism. This lowered pituitary function is supported by determinations of urinary pituitary gonadotrophins made in 145 patients shortly after admission to the hospital.

Further support for the hypothesis of deficient pituitary stimulation in malnutrition, is lent by the fact that corticotrophin administration to these patients produces an increase in adrenal activity shown by the eosinophil count and 17 ketosteroids excretion, and possibly also by the fact, that the thyrotrophin increases the thyroid activity. All these facts give enough evidence to establish the concept that there is panhypopituitarism in malnutrition.

Panhypopituitarism, in turn, will lead to a dysfunction in the whole endocrine system. However, the endocrine functions are not altered in the same degree but the loss or decrease in function is closely related to their participation in maintaining cellular life. Thus the gonadal functions are the first to be lost, next—and in a minor degree—the functions of the adrenals and the thyroid are altered, and only toward the end, the endocrine functions that intervene in vital oxidation and production of energy are lost.

By way of further studies our patients were observed over a period of months after they had been placed on an adequate dietary regimen. Outstanding endocrine changes occurred during the recovery phase. Weekly determinations of urinary gonadotrophins, urinary estrogens, 17 ketosteroids and clinical studies were made in males and females during several months. These studies gave a characteristic picture that appeared from the second to the fourth week after the dietary regimen was begun, consisting in a dramatic rise in the excretion of urinary gonadotrophins. This phenomenon shows that the tissues

have recovered their capacity to utilize hormones and therefore their inhibitory action on the pituitary no longer persists.

The output of gonadotrophins in large quantities is followed by the appearance of enormous quantities of estrogens in the urine and by the reappearance of gonadal activity that in young women is shown by the vaginal smear and by the reestablishment of menstrual periods that make pregnancy possible, as happened in two of our cases. Normalization of ovarian activity is directly related to gain in weight and general recovery of the patients in every respect.

Conclusion

Our observations show definite and constant alterations of the endocrine functions in malnutrition that can be clinically appraised and measured by the precise hormone determinations now available. We know now that the endocrine disturbances have great significance and should always be investigated in malnutrition because they have at least the same importance as the alterations in other organic functions and are more important and more significant for the life and well-being of these patients than the dermatological alterations so fully described by others.

The evidence gathered indicates that in malnutrition the tissues are unable to utilize adequately the factors, such as vitamins and hormones which are indispensable promotors of the cellular metabolic activity. These studies of the endocrine system are a contribution toward the integration of the complete picture of malnutrition and help to better understand the metabolic disturbances that occur.

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Multiple Use of Chest X-Ray

In a symposium on screening for asymptomatic disease published in the October, 1955, issue of the Journal of Chronic Diseases, it is pointed out that the amount of heart disease found on current chest x-ray surveys might be increased ninefold and that additional lung cancer could be uncovered if films were read more carefully for these conditions. The desirability of improved film interpretation should be given thoughtful consideration.

As a general rule today, health departments and other agencies conducting chest x-ray screening read the films with great care for tuberculosis and the cardiovascular system is considered incidentally.

Thus, the prevailing situation with regard to use of the chest x-ray as a case-finding device for heart disease results in a low yield and succeeds only in identifying cases most advanced and least likely to receive benefit. Even more important, analysis of the returns of such an "incidental" survey forces the conclusion that chest x-ray surveys are not productive as a means for detecting early heart disease.

It is almost axiomatic, however, that the effectiveness of screening tests for early disease is directly proportional to the skill of the tester and the intensity of his search. Furthermore it is, in fact, far more difficult to detect early disease than to detect disease in its advanced stages. These axioms and facts combine to give one conclusion. Every effort should be made to improve and maintain the quality of film interpretations at the highest possible level if these screening devices are to work efficiently.

Such a conclusion strongly suggests that health departments currently conducting mass tuberculosis surveys can profit from a reexamination and reconsideration of their survey methods. A pilot study can quickly and simply show the extent to which a local situation parallels the experiences reported in the Journal of Chronic Disease symposium. Wherever the parallel exists, a clear-cut action will be indicated—action that will yield fruit in terms of lives saved and disability prevented.

Lifesaving Drugs

It is a commonplace that life expectancy has increased and it is perhaps worth considering just what part our pharmacy has played in this salvage for longer years.

The greatest contribution through drugs has obviously been made by the antibacterial agents. Twenty years ago the case-fatality rate from lobar pneumonia

was about 25 per cent; now about 21 of the previously doomed 25 are saved. Pneumococcal meningitis used to kill nine out of 10 of its victims; now seven of these nine recover. Two decades ago the case-fatality rate from meningococcal meningitis was about one in three; now only one in 25 succumb. Tuberculous meningitis was uniformly fatal; nowadays about half the patients recover. Subacute bacterial endocarditis also boasted a 100 per cent mortality, but now about 80 per cent can be saved. Typhoid fever used to claim a case-fatality of about 10 per cent; now only about two in 100 patients die. The mortality of Rocky Mountain spotted fever has been reduced from over 20 to about one per cent. Over half the patients infected with bubonic plague used to die, but now the mortality is but one in 25. And so on.

Beside the signal role of the antimicrobial agents, the lifesaving achievement of other drugs is modest, indeed, yet still remarkable. For example, the anticoagulants have undoubtedly reduced the immediate mortality in coronary thrombosis by about half, and they have certainly seemed to reduce the incidence of fatal postoperative and postpartal pulmonary embolism where they have been routinely employed. The antithyroid drugs have indirectly improved the mortality in thyrotoxic patients. In the days before hyperthyroidism could be medically controlled, mortality from thyroidectomy in the best hands was about one per cent; nowadays, when surgery is undertaken only after the thyroid flame has been medically extinguished, the operative mortality is only about two per 1,000. British Anti-Lewisite has undoubtedly saved a number of persons who would otherwise have succumbed to poisoning with arsenic, mercury, or gold.

In the face of this gratifying record of achievement it is well not to forget that each of these lifesavers has taken its own toll of lives. The number of such victims is obviously insignificant compared with the multitudes that have been saved, but it is none the less salutary to keep before us the sobering fact that all medicines are themselves poisons.

(The Journal is indebted to Henry J. L. Marriott, M.D., University of Maryland Hospital, Baltimore, Md., for assistance in the preparation of this editorial.)

Laboratory Refresher Courses

The Laboratory Division of the Public Health Service's Communicable Disease Center has announced the 1956–1957 schedule of laboratory refresher courses. Courses of from one to four weeks are given in the laboratory diagnosis of bacterial diseases, parasitic diseases, viral and rickettsial diseases, rabies, tuberculosis, and parasitic and mycotic infections, and in laboratory methods in medical mycology, in veterinary mycology, and in the study of pulmonary mycoses. The earliest courses begin on September 10.

The schedule, further information, and application forms from Laboratory Training Services, Communicable Disease Center, P. O. Box 185, Chamblee, Ga.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

The Case for Medical Research

"Does Medical Research Repay the American People?" is a handsomely printed set of charts. The answer is "yes" in longer useful lives, death rate declines, greater productivity, and increased income. Here are dramatic charts showing the 10-year decline in death rates from nine different conditions, ranging from a 33 per cent decrease in infant deaths to 91 per cent in the influenza death rate. These declines are related to the new drugs, penicillin, streptomycin, isoniazid, and others that were the direct result of research. Because of lives saved, it is estimated that the federal government has gained in one year about $277,000,000 in taxes.

Federal appropriations for medical research are contrasted with those for other purposes, atomic weapons, agricultural research, highways, as well as with expenditures of Americans for such items as chewing gum, lipstick, ball point pens, and other marginally useful items.

This brochure was prepared to "stimulate understanding of the need for increased research funds in the fight against the major killing and crippling diseases," by the National Health Education Committee (135 E. 42nd St., New York 17). Among its sponsoring members are Drs. Sidney Farber, Russel V. Lee, Howard Rusk, and Fredrick J. Stare, and directors of voluntary health agencies, Leonard Goldenson and Karl Van Meter.

Prohibition Is Not the Answer

"How to Stop the Drug Traffic" appeared in "The Nation" of April 21, 1956. Written by Alfred L. Lindesmith, professor of sociology, Indiana University, its thesis is that the problem of drug addiction is essentially a medical problem. Trying to handle it by prohibition and police suppression merely makes it profitable, increases rather than decreases it, and adds to the sum total of crime.

Professor Lindesmith has studied the system in Britain where drug addiction is handled by physicians and where there is controlled legal distribution to users. There is, therefore, no temptation to commit crime to obtain the drug nor any incentive for creating new users. The British system has also been advocated by the New York Academy of Medicine.

Professor Lindesmith estimates that there are more addicts in the United States than in all of the other Western nations combined and more juvenile users in New York City than in the whole of Europe. "The American market is the hub of the drug traffic in the Western hemisphere. . . . The main hope of control must be based on prevention. The punitive program now in operation neither prevents nor cures and it actually nullifies the rehabilitative measures being attempted." Public health workers should be aware of this viewpoint and its documentation on the addiction problem.

This article and several pro and con

letters that appeared later in the May 19 issue of "The Nation" were inserted in the Congressional Record of June 7, 1956 (pp. 4450–4452), at the request of Victor L. Anfuso, representative from the Eighth New York District, as part of the testimony in connection with the proposed federal narcotics law, a feature of which includes the death penalty for narcotic peddlers.

The Nation, 333 Sixth Ave., New York 14, N. Y., 20 cents per copy, $7 annually.

Florida Staff Indentify Themselves

The June, 1956, issue of Florida Health Notes is subtitled "Who's Who and What's What" and serves "the dual purpose of telling you about some of our activities in 1955 and introducing some of the people responsible for conducting the affairs of the Florida State Board of Health." Included are pictures of the Board of Health and the 22 top administrative staff of the State Department of Health, with brief description of the responsibility and the chief activities in 1955 of each.

A list of county or district health officers indicates that each of the 67 counties in the state, with one exception of 25,000 population, is covered by one of 37 full-time county or multi-county health departments. And each has the health officer position filled. More than half of the 37 health officers have the M.P.H. as well as the M.D. degree.

The reasons for this in the face of extensive uncovered areas and a large percentage of vacancies in theoretically covered areas in many other states are probably many. Florida is a relatively well-to-do state, its climate has been highly publicized, it has a good many migrants from areas accustomed to health services. These may be among the reasons. But the state health officer, Wilson T. Sowder, M.D., may also be a part of the answer. Some years ago he recommended higher salaries for some of his staff and local directors than he himself was receiving. In other words, the state has been led to believe that public health is important enough to pay for.

In this connection, it might be rewarding to review Dr. Sowder's article in the American Journal of Public Health, October, 1952, on "Recruitment and Retention of Public Health Personnel in Florida" in which he reviews the state's seven-year experience.

1954 Tuberculosis Data

The analysis of tuberculosis data, made annually in the Division of Special Health Services of the USPHS, is now available for 1954. It indicates that there has been a continuing small decline in the number of newly reported active cases the country over. However, 18 states reported an increase in active cases.

It is interesting to note that about one-fourth of all newly reported cases were found through tuberculosis x-ray case-finding activities—50 per cent in Kentucky and nearly three-fourths in Tennessee.

Edward T. Blomquist, M.D., is chief of the tuberculosis program; the authors are Herbert I. Sauer and Paul L. Roney, Gov. Ptg. Office, Washington 25, D. C., 25 cents.

Worth Acquiring

"X-Ray Protection," Handbook No. 60 of the National Bureau of Standards, recognizes the increasing use of high-energy x-rays in medical diagnosis and treatment and in industry, thus creating problems of radiation protection. The handbook recommends the safety standards set forth by the National Committee on Radiation Protection. It is intended primarily for the protection of the radiation worker and the public, but some

cautionary statements are directed to the physician giving patients radiation treatment. Superintendent of Documents, Washington 25, D. C.; 20 cents.

"Guiding Principles and Procedures for Industrial Nurses" is the 1955 version of the 1943 "Standing Orders for Nurses in Industry." It was prepared by the Council on Industrial Health of the American Medical Association and originally published in the journal of the association of November 5, 1955. It can well serve as a manual for the nurse in occupational health. Single copies are free from the Council on Industrial Health, American Medical Association, 535 N. Dearborn St., Chicago, Ill. Multiple copies should be ordered from the Order Department of the association; 40 cents per copy or less depending on quantity.

"A Child Safety Handbook" by the New York City Department of Health might well be used as a model by other health departments. It consists primarily of a check list of home accident hazards that should be avoided. It's all been said before, but needs to be said many times in simple words and simple illustrations as in this case. 125 Worth St., New York 13.

"Breast-Feeding the Baby—the Way That's Natural, Practical, Economical" is a brief pamphlet encouraging breast-feeding of infants together with helpful suggestions and instructions. Producer of a bottle-feeding formula, the Ross Laboratories promotes its product only among the medical profession. It believes further that it should encourage and participate in fundamental and applied research.

Ross Laboratories is the new name of the 53-year old M & R Laboratories named to commemorate the founder, Stanley M. Ross, whose "career coincided with the development of pediatrics as a science."

The breast-feeding booklet is available to health departments in quantity and is specially recommended "to refresh the patient's mind on points that have been explained," in clinic or home nursing consultation.

Ross Laboratories, Columbus 16, Ohio.

"Health Guide for Travelers" "is intended," so it reports, "to fill the void left by the usual sources available to the tourist." It gives in conversational language the basic information on drugs and first aid for travelers, special precautions for the tropics, food and water supplies, precautions about water sports, immunization requirements, and medical care services. A thorough check up by one's physician before an extended tour, a supply of the basic drugs, moderation in food, and enjoyment with care are recommended. Consumers Union, Mount Vernon, New York, 25 cents.

Annual Report

"Three Down—More to Go" is the 1955 and 48th annual report of the National Society for the Prevention of Blindness. The "three down" of the title refers to the virtual elimination of ophthalmia neonatorum and trachoma and the more recent recognition, following extended research, of the cause of retrolental fibroplasia.

Among the "more to go" are cataract and glaucoma whose causes are still unknown, as well as the need for expanded health education in prevention and early diagnosis.

This is an excellent report to contributors and a plea for funds on a high plane. National Society for the Prevention of Blindness, 1790 Broadway, New York 19, N. Y.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Advances in Virus Research (Vol. III)—Edited by Kenneth M. Smith and Max A. Lauffer. New York: Academic Press, Inc. (125 East 23rd St.), 1955. 339 pp. Price, $8.00.

Each of the seven sections of this volume is a fascinating, narrative account and analysis of the present status of knowledge and investigation in the field dealt with, developed in a style at once thoughtful, critical, speculative, and provocative.

The first section, on Comparative Biochemistry and Virology (S. S. Cohen) develops the problem of "the unity of biochemistry." The pros and cons terminate with the view that, "It has become increasingly evident that one may not extrapolate freely from one biological system to another." The ample current documentation and the incisive commentary based on widely diversified investigations of algae, bacteria, and viruses (biochemical, physiological, and morphological) make a most readable and informative presentation.

The second section on the Chemotherapy of Viruses (R. E. F. Matthews and J. D. Smith) is a comprehensive account of the methodology of testing for inhibitory activity, a review of attempts to learn something of the metabolism of viruses, especially nucleic acid metabolism and structure (Watson-Crick hypothesis) as a vulnerable point for chemotherapeutic attack, and a survey of the vast amount of work directed toward finding chemotherapeutic agents and of studies on possible mechanisms of their action.

Limitations of space permit only mention of the sections on Tumor Viruses (J. W. Beard, D. G. Sharp and E. A. Eckert) dealing especially with the physical and chemical properties of the viruses of rabbit papilloma and avian leukosis; Morphology and Development of Insect Viruses (K. M. Smith), a most enlightening description; Multiplication of Plant Viruses in Insect Vectors (K. Moramorasch), leading to the suggestion that, "The plant and the warm-blooded animal hosts may be regarded, in these cases, as only temporary repositories and the disseminators of viruses to the main, mobile reservoirs—the arthropod vectors"; Cross Protection between Strains of Yellow-type Viruses (L. O. Kunkel), a searching inquiry into a very unusual physiological relationship; Current Status of Bacterial Transformations (H. Ephrussi-Taylor), with special consideration of the chemical and physical properties of transforming agents (mainly DNA) and the mechanism of transformation, with special consideration of the Watson-Crick hypothesis—a most stimulating article.

One may or may not agree with all of the postulations and the leading inferences of the writers, but no one interested in the fundamentals of virology can read this book without intellectual enrichment.

The volume contains a conveniently accented author index, a subject index, and a list of contents of Volumes I and II. It is beautifully illustrated throughout and is well manufactured.

MARTIN FROBISHER

Services for Children with Cleft Lip and Cleft Palate—A Guide for Public Health Personnel. Committee on Child Health, APHA. New York: American Public Health Association (1790 Broadway), 1955. 88 pp. Price, $1.50.

There are few defects of childhood which are more handicapping if neglected than clefts of the lip and palate, yet most cases of cleft lip and many cases of cleft palate, although they cannot be cured, may be so improved by adequate and timely treatment and follow-up care that the handicapping effect is slight. To accomplish this requires for many of these children highly specialized and extensive services involving many professional disciplines. These services should be made available in rural as well as urban areas through long-range, comprehensive and integrated programs embodying the coordinated efforts of various professional disciplines and private and official agencies.

This underlying theme is well and effectively implemented throughout the book and should be a resource far beyond the group of "persons in voluntary or official agencies or planning groups" for whom it was primarily written. It summarizes and presents with clarity throughout the text the existing significant knowledge regarding these defects in children—their incidence, cause, their classification as to type, extent, severity —the nature and variety and interaction of the various handicapping sequelae related directly or indirectly to the initial deformity, the many-faceted components, goals and timing of treatment, follow-up care, and supervision from birth through the child's growing years. It describes specifically the role and the desirable interrelated functioning of the various professional disciplines concerned in diagnosis, treatment and rehabilitation—medical and dental, social work, psychology, speech, education, nursing, etc., and, where pertinent, the special qualifications needed. It recommends the establishment of special services and facilities for these children on an over-all regional or statewide plan and in this connection discusses in detail the rehabilitation center —its location, functions, personnel and special equipment—specialized hospital inpatient services and clinic services. It discusses in detail the modus operandi of organization of community resources for program planning and development.

All this and more, including chapters on research and program evaluation and study, make this book a stimulating contribution. ELLA OPPENHEIMER

America's Needs and Resources: A New Survey—J. Frederic Dewhurst and Associates. New York: Twentieth Century Fund (330 West 42nd St.), 1955. 1148 pp. Price, $10.00, cloth.

This volume aims to present a new and comprehensive survey of the demands and needs, the resources and capacities of the American economy. It is an expansion of the volume by the same title published in 1947. "The present survey finds its major focus in the phenomenal post-war boom, in the long range upsurge of the economy which this latest boom accentuated, and in the significance of our expanding economy for the future well-being of our nation."

The reader who tries to take a comprehensive overview of this study will find an interesting but a comprehensive task. There are basic trends related to population growth, output, income and expenditures. There are consumption requirements—food, clothing, housing, household operation, transportation, health and medical care, recreation, education, religion, and welfare. Similarly capital requirements are analyzed as are government and foreign transactions, resources and capacities.

The chapter on health and medical care is written by Margaret C. Klem

and Helen Hollingsworth. It presents in 50 pages an orderly presentation of the subject with full documentation.

The volume is well printed and well illustrated. It will remain a basic source book for economists and students of the American way for a long time to come. The Foreword by A. A. Berle, Jr., is an inspired piece of writing.

REGINALD M. ATWATER

Tuberculosis in the Army of the United States in World War II—By Esmond R. Long and Seymour Jablon. Washington, D. C.: Gov. Ptg. Office, 1955. 88 pp. Price, $1.50.

This Veterans Administration medical monograph reports what a study of the Follow-Up Agency of the National Research Council accomplished in cooperation with the Veterans Administration and the Army. The primary objective was to determine the effectiveness of x-ray screening in discovering tuberculosis in recruits at induction and at discharge. Two large random samples were compared: one of men discharged from the Army (1942–1945) for disability with tuberculosis, the other of men separated during the same period but not discharged for tuberculosis.

A system of multiple interpretation of induction and discharge films was set up with two readers and a referee. A significant difference was noted between the readers in the estimation of suspect tuberculosis, and also in respect to the extent of the disease when present. Disagreement was high in respect to presence of calcification, fairly frequent in respect to activity of disease in the borderline; it was infrequent as to equivocal or unequivocal activity. It was greater with standard size than with miniature films. Self-disagreement comparable to disagreement of readers was noted; however, it was chiefly in the borderline.

Incidental findings were: service in the Medical Department was associated with relatively high development of tuberculosis; foreign service, per se, did not affect the incidence of the disease, although abnormally great exposure in certain theaters was associated with increased breakdown; incidence was excessively high in prisoners of war; endogenous and exogenous tuberculosis are both important in military service.

Approximately one-half the men discharged for tuberculosis had roentgen evidence at the time of induction for service, but the lesions were overlooked by the original readers.

Especially instructive to the reviewer was the care with which the samples were selected and the controlled manner in which the x-ray studies were carried out. The project method, as well as the findings, deserve study by epidemiologists and x-ray specialists.

EDWARD KUPKA

Yellow Fever Vaccination—Smithburn, et al. World Health Organization Monograph Series No. 30. New York: Columbia University Press (2960 Broadway), 1956. 238 pp. Price, $5.00 cloth.

The origin, development, and utilization of yellow fever vaccines are clearly described, with minimal controversy, by an outstanding group of experienced workers. These vaccines rank among the most effective known in contemporary preventive medicine. Millions of persons throughout the world have been inoculated. Postvaccination immunity, now officially recognized as six years in duration, may be conferred even for a lifetime in most individuals.

Current opinion favors employment of the 17D chick embryo vaccine (Asibi) rather than the French mouse brain vaccine (Senegal), because of a mutation in the passage of the Asibi strain evolving a variant with reduced neurotropism for monkeys and mice that became the choice for human use in 1936. Meningoencephalitic syndromes,

predominantly in children under the age of five, have occurred more frequently and more severely with the French vaccine than with the 17D, although the over-all observed incidence of this untoward reaction has been extremely low. Rigid control by a seed lot system has thus far prevented the redevelopment of critical neurotropism in vaccines derived from the 17D strain since 1941.

Publication of this monograph is timely, since the Panama wave of yellow fever has already entered Guatemala. The Gulf settlements of Mexico and the United States, wherever Aëdes aegypti remains in sufficient density, are now in imminent danger of urbanization of the approaching virus.

NORMAN W. ELTON

Special Education for the Exceptional—Edited by Merle E. Frampton and Elena D. Gall. **Vol. I. Introduction and Problems,** 1955. 453 pp. Price, $5.50; **Vol. II. Physically Handicapped and Special Health Problems,** 1955. 677 pp. Price, $5.50. **Vol. III. Mental and Emotional Deviates and Special Problems,** 1956. 700 pp. Price, $5.50. Boston, Mass.: Porter Sargent (11 Beacon St.).

No professional discipline has sole or prior concern for handicapped and "exceptional" persons. This comprehensive three-volume work on special education for the exceptional clearly demonstrates this point. Although the basic title emphasizes the chief focus of interest, the table of contents within each volume attests to the diversity and breadth of approach which the editors have used in developing their subject.

The substance of this monumental compilation consists of scores of separate articles written by different authors. Many are taken unchanged from other published sources. Some are obviously for parent and lay reading, but the majority are written for professional persons. Each is unique in style of writing and approach to subject matter, and all are finished products, pointed and concise, giving authoritative and up-to-date information. In grouping these articles by subject matter, arranging them under appropriate section and chapter headings, and adding extensive lists of bibliographical and other resource materials, the editors have produced a three-volume encyclopedia. The total impact is almost overwhelming, as the reader faces the tremendous bulk of material. This has apparently been recognized, and entire chapters, containing from four to eight articles on related subjects, are being made available separately in pamphlet form.

Throughout the volumes special education as the central focus is looked at and discussed from many and varied angles—from the point of view of the individual and his family, those who are responsible for him, and the community in which he lives. The interrelationships among professional disciplines—health, psychological, social, public health, vocational, and educational—are illustrated in many ways. Groups of "exceptional" persons with particular educational problems are given special attention, for example, those with physical handicaps or mental and emotional disturbances. Although most of the material relates to children, a section on the aged and other adult problems, such as alcoholism, are included. Concrete facts are presented, philosophies explored, and methods of care and handling outlined. Because it is a compilation of such vast proportions, the reader may have trouble finding concise, clear-cut, over-all definitions of principles, practices, and trends. Specific emphases lose their impact in the mass of words and figures, for repetitious material has not been successfully avoided. However, with the help of a detailed table of contents (repeated in each volume), a glossary (in Volume I), and an index (in Vol-

ume III), the conscientious reader can expect to find helpful information on almost any phase of this important subject. These volumes are highly recommended as resource and reference books for all professional persons dealing with the "exceptional." ELINOR F. DOWNS

Why Patients See Doctors—By S. Standish; B. M. Bennett; K. White; and L. E. Powers. Seattle, Wash.: University of Washington Press, 1955. 94 pp. Price, $2.50.

This little book is a surprise—a pleasant one—and hopefully will stimulate the development of more and better studies of the health reasons for seeking medical care. Within the rather sharp limitations of what started out as the Washington Sickness Survey, the authors found that more patients visit private practitioners for "conditions not directly related to illness" than for any other single cause. The authors point out that, if this fact can be verified for other areas, there are implications for the future education and training of physicians and for health planning in general.

Budgetary limitations apparently imposed so many restrictions on the method and extent of this study that it is not really possible to extrapolate the reported results to all medical practice, even in the State of Washington. Unfortunately, the authors have attempted such a generalization, thereby casting doubt on the significance of their report. However, the method is described and many of the results reported in sufficient detail to permit the critical reader to use the results as suggestive of the major health problems for which private medical care is sought.

The body of this brief report offers a fairly detailed breakdown of the major categories of conditions which patients brought to their physicians. Differences are shown by age and sex among the patients, by whether care was sought from general practitioners or specialists among the M.D.s or from osteopaths. One interesting table contrasts the reasons for visits with the causes of death in Washington in 1953. Another demonstrates the importance of accidents among young, otherwise healthy adults. There is a brief but useful comparison with the findings of six other recent morbidity studies.

Health workers will be interested in the relative success of their efforts to stimulate health supervision for infants and mothers. They should find here the strong implication that an intensification of their efforts is in order to see such supervision achieved, not only for more mothers and infants, but for all children and adults.

Although the text lists some of the limitations of the study, it fails to point out the lack of randomness in the selection of the reporting physicians; the failure to obtain the patient's reason for the visit; the neglect of medical services sought from sources other than private medical practitioners; or the extent to which patient visits were not reported. Despite these failures, this is a stimulating little book for thoughtful public health workers. JONAS N. MULLER

State Control of Milk Prices—By James A. Tobey. Washington, D. C.: Milk Industry Foundation (1145 19th Street, N.W.), 1955, 98 pp. Price, $6.00.

This book presents a factual study of the legal aspects of the state control of milk prices and trade practices. Dr. Tobey, an attorney, is well known to many students of public health law through his textbook "Public Health Law."

Milk has been subject to governmental regulation for nearly a century. The sanitary control and regulation of quality of milk and milk products has been upheld by the courts as a proper use of police power. Price control was

initiated in 1933 and has been upheld as "a valid and constitutional exercise of the police power over an industry which is affected with the public interest."

The book will be of interest to attorneys and those officials who are concerned with the legal background which has established price fixing as a matter of concern for the public welfare. It is interesting that the Supreme Court of the United States has handed down 15 decisions between 1934 and 1950 upholding the state control of milk prices. In the important decisions the court has not been unanimous.

The author, however, fails to evaluate or summarize the role that public health has played in the decisions, which have been essentially economic control of the industry. Because of this fact, the book remains of little interest to the majority of public health workers.

A. HARRY BLISS

An Investigation of the Efficacy of Submarine Outfall Disposal of Sewage and Sludge—By Earman A. Pearson. Sacramento, Calif.: State Water Pollution Control Board, 1956. 154 pp. Price, $2.00, plus 8 cents sales tax if purchased through a California address.

Submarine outfall disposal of sewage (and in some cases sewage sludge) is practiced in some form in almost every coastal city in the United States. This method is used by more than 125 California communities, including 11 of the 13 largest cities. Many communities are planning to spend extensive sums of money for additional facilities for waste disposal to the ocean—or to inland bodies of water.

Recognizing the health, biological, and economic factors involved in this method of disposal, the California State Water Pollution Control Board arranged for the studies reported in this volume. There is at present a dearth of basic data which can be used for the design and construction of these outfalls.

As with many of the reports published by the State Pollution Control Board valuable portions include the preliminary study of background information. This report commences with a discussion of the philosophy of submarine outfall disposal, followed by a consideration of public health criteria, including a discussion of the viability of sewage bacteria in sea water, and with particular reference to the survival of enteric disease organisms. The possible effect of submarine disposal of sewage and sludge on marine resources is also considered.

The major portion of the report is given up to a consideration of the mechanics of dispersion, oceanographic factors, construction, operation and maintenance, sludge disposal considerations, and special design considerations. In summary the author points out the need for further research in two specific areas. One, that of basic data needed for better design than now exists, and second, expansion of current knowledge regarding the important phenomena related to marine waste disposal. This report should be valuable for any community or consulting engineer considering waste disposal into the ocean or other large bodies of water. The basic data contained in the first portion of the report would be valuable to anyone dealing with the problem of water pollution.

FRANCIS B. ELDER

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADMINISTRATION OF HEALTH INSURANCE IN CANADA. Malcolm G. Taylor. New York: Oxford University Press, 1956. 270 pp. Price, $5.65.

ATLAS OF EXFOLIATIVE CYTOLOGY. Supplement 1. George N. Papanicolaou. Cambridge, Mass.: Commonwealth Fund Book, Harvard University Press, 1956. Price, $4.00.

BLAKISTON'S NEW GOULD MEDICAL DICTIONARY. Editors, Normand L. Hoerr and Arthur Osol (2nd ed.). New York: McGraw-Hill, 1956. 1463 pp. Price, $11.50.

COMPOSTING. SANITARY DISPOSAL AND RECLAMATION OF ORGANIC WASTES. World Health Organization Monograph Series No. 31. Harold B. Gotaas. New York: Columbia University Press, 1956. 205 pp. Price, $5.00.

DISCOVER YOUR SELF! A PRACTICAL GUIDE TO AUTOANALYSIS. Stephan Lackner. New York: Merlin Press, 1956. 192 pp. Price, $2.95.

DOCTOR'S MARITAL GUIDE FOR PATIENTS, A. (Regular and Catholic Editions). Bernard Greenblat. Chicago, Ill.: The Budlong Press (available through physicians only). 88 pp. Price, $1.50 each.

DRUG ADDICT AS A PATIENT, THE. Marie Nyswander. New York: Grune & Stratton, 1956. 173 pp. Price, $4.50.

ELEMENTS OF A COMMUNITY MENTAL HEALTH PROGRAM, THE. Papers presented at the 1955 Annual Conference of the Milbank Memorial Fund. New York: Milbank Memorial Fund, 1956. 226 pp. Price, $1.50.

GUIDE FOR THE DEVELOPMENT OF A PROGRAM IN SUPERVISED CLINICAL PRACTICE IN PUBLIC HEALTH NURSING, A. Baltimore, Md.: State Department of Health, Division of Public Health Nursing, 1956. 28 pp.

FOLLOW-UP STUDY OF WAR NEUROSES, A. Norman Q. Brill and Gilbert W. Beebe. Washington, D. C.: Department of Medicine and Surgery, Veterans Administration, 1956. 393 pp.

HUTCHISON'S FOOD AND THE PRINCIPLES OF DIETETICS. V. H. Mottran and George Graham (11th ed.). Baltimore, Md.: Williams & Wilkins, 1956. 630 pp. Price, $8.25.

INDUSTRIAL HYGIENE FOUNDATION. 20th Annual Meeting. Transactions Bulletin No. 29. Pittsburgh, Pa.: Industrial Hygiene Foundation of America, Inc., 1956. 274 pp. Price, $5.00.

MENTAL HEALTH PLANNING FOR SOCIAL ACTION. George S. Stevenson. New York: McGraw-Hill, 1956. 358 pp. Price, $6.50.

MENTAL HYGIENE. D. B. Klein. New York: Henry Holt, 1956. 654 pp. Price, $6.75.

MENTALLY RETARDED PATIENT, THE. Harold Michal-Smith. Philadelphia, Pa.: Lippincott, 1956. 203 pp. Price, $4.00.

MUNICIPAL YEAR BOOK 1956. Edited by Clarence E. Ridley, Orin F. Nolting, and David S. Arnold. Chicago: International City Managers' Association, 1956. 582 pp. Price, $10.00.

NUTRITION REVIEWS. Vol. 13, Numbers 1–12, January-December, 1955. New York: Nutrition Foundation, 1956. 390 pp. Price, $4.00.

PATTERNS OF MOTHERING. Sylvia Brody. New York: International Universities Press, 1956. 446 pp. Price, $7.50.

PEACEFUL USES OF ATOMIC ENERGY. Vol. 10—Radioactive Isotopes and Nuclear Radiations in Medicine. United Nations—Proceedings of the International Conference in Geneva, August, 1955. New York: Columbia University Press, 1956. 544 pp. Price, $8.00.

PEACEFUL USES OF ATOMIC ENERGY. Vol. 11—Biological Effects of Radiation. United Nations—Proceedings of the International Conference in Geneva, August, 1955. New York: Columbia University Press, 1956. 402 pp. Price, $8.00.

PEDIATRIC NURSING. Gladys S. Benz (3rd ed.). St. Louis, Mo.: Mosby, 1956. 634 pp. Price, $5.25.

PERSONAL AND COMMUNITY HEALTH. C. E. Turner (10th ed.). St. Louis, Mo.: Mosby, 1956. 660 pp. Price, $4.75.

PERSONAL HEALTH RECORD. Carl A. Dragstedt. Harrisburg, Pa.: Military Service Publishing Co., 1956. 64 pp. Price, $1.00.

PUBLIC HEALTH IN BURMA. Murray P. Horwood. Cambridge, Mass.: Massachusetts Institute of Technology, 1956. 56 pp.

PRACTICE OF PSYCHOSOMATIC MEDICINE, THE. Hyman Miller and Dorothy W. Baruch. New York: Blakiston, McGraw-Hill, 1956. 196 pp. Price, $5.00.

SCHOOL HEALTH PRACTICE. C. L. Anderson. St. Louis, Mo.: Mosby, 1956. 560 pp. Price, $4.75.

SECRET ENEMY. THE STORY OF A DISEASE. James Cleugh. New York: Thomas Yoseloff, 1956. 273 pp. Price, $5.00.

SELECTED PAPERS OF JOSEPH W. MOUNTIN, M.D. Joseph W. Mountin Memorial Committee. New York: American Public Health Association, 356 pp. Price, $5.00.

STATISTICAL PROGRAM FOR THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK, A. Recommendations to the Mayor by the Committee on Statistical Program for the City of New York. New York: Russell Sage Foundation, 1956. 71 pp. Price, $1.00.

SUMMARY OF PUBLIC AND VOLUNTARY HEALTH AGENCY ACTIVITIES IN RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE. New York: Helen Hay Whitney Foundation, 1956. 176 pp. Distribution is restricted.

TRACE ELEMENTS IN HUMAN AND ANIMAL NUTRITION. E. J. Underwood. New York: Academic Press, 1956. 430 pp. Price, $9.50.

TRENDS AND DIFFERENTIALS IN MORTALITY. Papers presented at the 1955 Annual Conference of the Milbank Memorial Fund. New York: Milbank Memorial Fund, 1956. 165 pp. Price, $1.00.

TREATMENT OF THE CHILD IN EMOTIONAL CONFLICT. Hyman S. Lippman. New York: Mc-Graw-Hill, 1956. 298 pp. Price, $6.00.

VETERINARY PARASITOLOGY. Geoffrey LaPage. Springfield, Ill.: Thomas, 1956. 964 pp. Price, $12.75.

YOUR ADOLESCENT AT HOME AND IN SCHOOL. Lawrence K. Frank and Mary Frank. New York: Viking Press, 1956. 336 pp. Price, $3.95.

Looking at the 1956 American Family

The statistician of the Metropolitan Life Insurance Company has put together a statistical likeness of the 1956 American family. Edward A. Lew opens his profile of the American Family with these words, "The profile of the American family has changed markedly in the past 15 years."

In 12 pages of mimeographed pages and 13 charts and tables, he fills out the "profile." He concludes that an increasing number of persons are living in families, that doubled-up families have decreased over the past 10 years, that Americans are marrying younger and having more children, that married women are increasingly in the labor force, and that the problem of orphanhood is decreasing. Metropolitan Life Insurance Company, One Madison Ave., New York, N. Y.

A Selected Public Health Bibliography with Annotations

Death Cars—In the years 1953–1955 scheduled airlines had accidental death rates of 0.55 per hundred million passenger miles; for railroads the figures were 0.10; for automobiles (and taxis) the rates were 2.70!

ANON. Notable Improvement in Aviation Safety. Statist. Bull. Metrop. Life Insur. Co. 37, 5:5 (May), 1956.

Weaker Sex?—"Disabling illness is more frequent among women than men and in each sex the incidence of such illness increases with advance in age. . . ." So begins a brief report on a two-year study of eight-day (or longer) illnesses among office and field personnel—which you are likely to find useful.

ANON. Sex and Age Differences in Disability. Statist. Bull. Metrop. Life Insur. Co. 37, 5:1 (May), 1956.

Emerging Hazard—Fourteen papers from a panel discussion of possible effects of atomic energy upon people's health cover about every imaginable hazard that the coming industrial use of this form of energy may create for us. Grim reading.

ALBERT, R. E., et al. Impact of the Atomic Energy Industry on Community Health. Arch. Indust. Health 13, 5:425 (May), 1956.

Market Poultry—The question argued here is this: shall market poultry be eviscerated first or sold with organs intact? Evidence is offered that the latter condition—only 30 per cent of the total—is objectionable from the sanitary standpoint.

ATKINSON, J. W. "New York Dressed" Poultry. Modern San. 8, 5:25 (May), 1956.

Health Officers' "Chestnuts"—A district health department gained financial support for some of its threatened programs because a small group of understanding and dedicated citizens—members of its several advisory committees—were glad to become socially useful catspaws.

BOHLEY, O. R. Citizens Advisory Committees in an Official Agency. Nursing Outlook 4, 6:322 (June), 1956.

Helped by a Quarter—"Breathes there the (health) man with soul so dead/ Who never to himself hath said/ Let's try out a questionnaire!" Reported here is an experience with several inducements used to improve response. The study is concerned with nurses, but it must be suggestive about the behavior of other people.

BRESSLER, M., AND KEPHART, W. M. An Experience with the Use of the Mail Questionnaire. Nursing Res. 5, 1:25 (June), 1956.

Another Fluoride Finding—During its ten years of fluoridating its water supply this Canadian community chalks up another statistically significant reduction in tooth decay whereas in the control city comparable caries incidence remained the same or increased somewhat.

BROWN, H. K., et al. The Brantford-Sarnia-Stratford Fluoridation Caries Study, 1955 Report. Canad. J. Pub. Health 47, 4:149 (Apr.), 1956.

Introducing Youngsters to Health—An "almost unique" variation of the school health program is outlined here

and some of its peculiar successes are recounted.

DOYLE, W. G. Let's Hire a Health Coordinator. J. School Health 26, 5:150 (May), 1956.

Mostly About Measles—Reinvestigating the viral causes of measles, chickenpox, and a "mild exanthem," this famous researcher is led to conclude that if we are in fact in possession of the etiologic agent of measles, then we have the means of assaying the titer of antibodies in globulin and eventually we may be able to produce a useful prophylactic.

ENDERS, J. F. Observations on Certain Viruses Causing Exanthematous Diseases in Man. Am. J. M. Sc. 231, 6:626 (June), 1956.

Competence Counts—Here is a provocative discussion of teamwork in laboratory services to public health. Qualified personnel from top to bottom is the one essential to be sought above all others.

HARDY, A. V. The Scientist, the Laboratory, and Medicine. Bull. Nat. A. Clin. Lab. 7, 2:38 (Jan.), 1956.

Smokers Catechism—Thirty-one searching questions are asked by the Brit. M. J. about the apparent direct relationship between cigarette smoking and lung cancer and they are answered with helpful brevity and candor by the two British researchers who have written most extensively on that subject.

HILL, A. B., AND DOLL, R. Lung Cancer and Tobacco. Brit. M. J. 4976:1160 (May 19), 1956.

What's New Here?—This summary of a seminar pulls together in good shape a lot of present-day ideas about poliomyelitis, herpes simplex, monilia infections, rabies, and some other miscellaneous conditions.

HODES, H. L., et al. Recent Developments in Infectious Diseases. Pediatrics 17, 6:947 (June), 1956.

Where U. S. Leads—Discussed here is a current health matter in which the U. S. is far from the healthiest nation. In fact, in mortality from diabetes, the U. S. leads all the rest, the author points out with a jab. Present knowledge permits the definition of an adequate diet but the optimal diet remains to be defined and developed, he says in this review of current studies.

HUNDLEY, J. M. Diabetes-Overweight: U. S. Problems. J. Am. Dietet. A. 32, 6:417 (May), 1956.

In Wiley's Shoes—Almost everything you might want to know about protecting the American people from harmful foods and dangerous drugs seems to be included in these ten historical papers that go to make up this semicentennial symposium. A document to be kept handy in your files.

LARRICK, G. P., et al. Fifty Years of Food and Drug Protection (and nine following papers). Pub. Health Rep. 71, 6:557 (June), 1956.

Home and Community—The last of three discussions on juvenile delinquency ends with these quotable words: "There is no simple solution to the problem of delinquency but one fact is certain: the responsibility rests squarely on the shoulders of the adults in our society."

LITTLE, S., et al. Symposium on Juvenile Delinquency. Pediatrics 17, 6:930 (June), 1956.

It Has Happened—The happy ending to this long story of rabies eradication in England is quite well known. All the steps leading to this end may not be so widely familiar. Some day you may want to be in a position to put this information to argumentative use.

NICOL, C. G. Human Rabies (Hydrophobia) in England and Wales. M. Officer 95, 19:245 (May 11), 1956.

Bending Some Twigs—It may take a deal of hauling to drag this topic into the area of public health but it will interest a lot of us nevertheless. It is an inquiry into possible effects—both good and bad—of the little league baseball idea.

SKUBIC, E. Studies of Little League and Middle League Baseball. Research Quart. 27, 1:07 (Mar.), 1956.

Calorie Collectors' Failures—Professional health and social workers could do more to help organized local groups of heavyweights to stick by light-weight programs says this social scientist, and he tells how they might help.

SUSSMAN, M. B. Psycho-Social Correlates of Obesity. J. Am. Dietet. A. 32, 6:423 (May), 1956.

Inspiration for Oncoming Generations—If you have a spark of historical interest in you, do not miss this brilliant Chadwick Public Lecture delivered before the Royal Society of Medicine by our own Commissioner of Health of Baltimore. He tells in illuminating detail of the influence exerted by that great English pioneer upon the American leaders in public health and what they accomplished in consequence.

WILLIAMS, H. The Influence of Edwin Chadwick on American Public Health. M. Officer 95, 21:273 (May 25), 1956.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publication in which they appeared; the addresses are furnished for your convenience.

Am. J. M. Sc.—American Journal of the Medical Sciences. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6.

Arch. Indust. Health (Archives of Industrial Health), American Medical Association, 535 N. Dearborn St., Chicago, Ill.

Brit. M. J. (British Medical Association House), 19 Tavistock Square, London W.1.

Bull. Nat. A. Clin. Lab. (National Association of Clinical Laboratories), Mt. Royal and Guilford Avenues, Baltimore 2, Md.

Canad. J. Pub. Health (Canadian Journal of Public Health), 150 College St., Toronto 5, Ont., Canada.

J. Am. Dietet. A. (Journal of the American Dietetic Association), 620 N. Michigan Ave., Chicago, Ill.

J. School Health (The Journal of School Health), American School Health Association, 3335 Main St., Buffalo 14, N. Y.

M. Officer (Medical Officer), Chronicle House, 72/78 Fleet St., London, E.C.4, England.

Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.

Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

Nursing Res. (National League for Nursing), 2 Park Avenue, New York 16, N. Y.

Pediatrics (Journal of the American Academy of Pediatrics), 301–327 E. Lawrence Ave., Springfield, Ill.

Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Research Quart. (The Research Quarterly), American Association for Health, Physical Education, and Recreation, 1201 16th St., N.W. Washington 6, D. C.

Statist. Bull. Metrop. Life Insur. Co. (Statistical Bulletin Metropolitan Life Insurance Company), One Madison Avenue, New York 10, N. Y.

News of Affiliated Societies and Branches

Wisconsin Discusses Needs of Aged

The Wisconsin Association for Public Health was in the vanguard in selecting "Our Responsibilities for the Aging" as the theme of its 1956 annual meeting. When the Governor's Conference on Needs of the Aging was later announced, a joint meeting emerged. The Wisconsin association's responsibility for the three-day meeting, June 6–8, aside from cooperation in the general sessions, was a series of six workshops in which such subjects as community planning for the aging, public health services, nursing home care, home care, the team approach, the role of the county medical society, and care of the senile were explored.

Governor Kohler opened the conference, charging it to consider more participation of older people in community affairs; ways to improve the health of older people; how they might continue productive living as long as possible; their needs and preferences; and meeting the financial needs of later life. Professor Leo Simmons of Yale University gave the keynote address, whose main theme he suggested might be, "I prefer to be older for a short time than old before my time."

Recommendations coming out of the joint meeting are:

1. An interdepartment committee of agencies concerned with the aging to be set up in the state and provided with an executive secretary.
2. A biennial conference on aging to be called by the governor.
3. A clearing house on aging to be established immediately at the state level to provide information at national, state, and local levels.
4. A citizens committee on aging to be organized with services available to it of the executive secretary of the interdepartmental committee.
5. Both public and voluntary groups continue to study the needs of the aging.

At the business meeting of the Wisconsin association the following officers were elected:

President—Margaret E. Hatfield, M.D., state district health officer, Elkhorn
Vice-President—C. K. Kincaid, M.D., health commissioner, Madison
Secretary—Paul Weis, Madison.

Field Teaching Conference

The Southern Branch of the American Public Health Association held a two-day Field Teaching Conference in Tulsa, Okla., on April 2 and 3, 1956, just prior to its annual convention. About fifty public health nurses were present from the Public Health Service; state health departments of the Southern region; local health departments (actual or potential field experience centers); collegiate schools of nursing offering basic nursing programs, including preparation for beginning positions in public health nursing; and the three universities in the region that offer programs in public health nursing for graduate nurses.

The group discussed the possibilities and the needs and explored new ways for offering applied public health nursing field practice both for students in the basic collegiate schools and for graduate nurses in programs of study in public health nursing. The rapid development of the basic collegiate schools in the South has made it increasingly difficult to find a sufficient number of field centers prepared to offer educational field experience in public health nursing. Since the South is still largely

rural, the problems as well as the opportunities are quite different from those in the large urban areas of the country.

At the final session, the chief discussion centered around the need for research in public health nursing. This Field Teaching Conference Group voted unanimously to request a research project from the PHS for the following: "What do we need in a public health agency to provide experience which will build competencies for beginning public health nursing? The development of a method for measuring and evaluating the competencies of a nurse for beginning positions in public health nursing."

Association Members in Affiliates

The total membership of the 36 state Affiliated Societies currently is nearly 18,000 of whom somewhat fewer than one-third are also members of the APHA. More than half of the APHA membership is not identified with the state Affiliated Societies, although about 3,600 live where they would be welcome as participants in the professional activities of the state group. Approximately 2,400 live in the 14 states and the District of Columbia that are not presently affiliated.

The Association's Committee on Development of Functions and Services for the Strengthening of Affiliated Societies and Branches, whose chairman is Malcolm H. Merrill, M.D., state health officer of California, has pointed out that the state Affiliated Societies can readily strengthen their numbers by seeking members from those in their states who are already identified with the parent body. The committee urges Association members to take the initiative in joining their respective state associations. They suggest the advantage of the APHA By-Laws under which state societies receive an annual rebate of $1.00 for each paid up member or Fellow of the APHA who is a member of the state society.

The Governing Council of the Association has taken the position that there should be a well organized professional society of public health workers in each state and territory, to serve the same general purposes and eventually to be identified with the APHA. At the present time nine of the unaffiliated state societies are moving toward affiliation as rapidly as possible.

The new APHA By-Laws adopted in 1955 provide that new Affiliated Societies must include in their membership at least 75 per cent of the APHA members and Fellows living in their respective states. Existing affiliates have until 1960 to meet these same requirements.

The total APHA membership living in the states, territories, and provinces comprising the Western Branch is about 2,000; in the area from which Southern Branch membership is drawn the APHA has about 3,450 members.

Arizona Association Meets

"Widening Public Health Horizons" was the keynote of the 28th annual meeting of the Arizona Public Health Association held in Nogales, April 18–20. George Parker was president and Dorothy Craig, health educator of the Phoenix Health Department, was program chairman. Speakers were drawn from the State University, the Phoenix Area Office of the Public Health Service's Bureau of Indian Affairs, the Communicable Disease Center, and state public health workers.

A panel on "Migrants—An Old Issue with a New Perspective" urged that public health, social, and educational services that are available to other citizens be made equally available to the migratory worker. In a discussion of the place of the veterinarian on the public health team the acceptance of veterinary

medical skills in the international health field was called "an outstanding mid-twentieth century achievement." Veterinarians, it was suggested, need to share their training with physicians and workers in epidemiology, biostatistics, public health administration, sanitation, and communicable disease control.

Newly elected officers are:

President and Representative to the APHA Governing Council—James A. Dolce, M.D., health officer, Phoenix
President-Elect—Elizabeth Serban
Vice-President—Martha Pollard, nutrition consultant, State Department of Health
Secretary—Evelyn Longstreth, Phoenix Health Department
Treasurer—Cleon C. Bullock, sanitary and administrative officer, Mesa Health Department.

Idaho Association Meets

About 200 persons attended the 17th annual meeting of the Idaho Public Health Association held in McCall, May 4–5, under the presidency of William R. Jacobs, M.D., practicing physician of Lewiston. Among the featured topics were juvenile delinquency and youth rehabilitation as public health problems, new aspects of communicable disease control, chronic disease, and problems of the aged. Alexander Langmuir, M.D., chief, Epidemiology Branch, Communicable Disease Center, discussed "Disease Problems of the Future."

In reviewing the State Board of Health, the new chairman, Paul S. Boyd, announced that L. J. Peterson, M.S.P.H., had been moved up from administrative director to director of health for the state, with additional responsibilities such as tuberculosis and mental hospitals. Woodrow Benson has succeeded Mr. Peterson as administrative director.

Officers for 1956–1957 include A. Ben Wheeler, president, and Mrs. Margaret McDougal, secretary, each of Boise. L. J. Peterson was reelected representative to the APHA Governing Council.

1,700 at New York Meeting

The New York State Public Health Association met with the 52nd Annual Health Conference at Lake Placid, June 4–7. Meetings of eight related organizations and seven sections of the Public Health Association took place, with a registration of about 1,700 persons.

The first general session was opened with an address of greeting by Governor Harriman's representative. At this session also Ira V. Hiscock, Sc.D., President of the American Public Health Association, spoke on "Frontiers in Public Health"; Herman E. Hilleboe, M.D., state health commissioner, on, "Challenges of the Future in Public Health"; and James Greenough, M.D., president of the State Medical Society, on "Better Medical Care—The Goal of Public Health and Private Practice."

Other subjects discussed were the role of the social sciences in public health, use of community resources, problems of community air pollution, automobile accident prevention, community attitudes in public health, and health careers.

At the luncheon session of the Public Health Association, the Hermann M. Biggs Award for meritorious service in the field of public health was presented to the late Albert D. Kaiser, M.D., health officer of Rochester, and accepted by Mrs. Kaiser. Presentation was made by the award chairman, V. J. Sallak, secretary, Buffalo-Erie County Tuberculosis Association. At this meeting also officers were elected. E. Dorothy Gordon, R.N., consultant public health nurse, Bureau of Cancer Control, State Department of Health, was elected president to succeed Robert W. Osborn, executive secretary, New York State Committee on Tuberculosis and Public Health. Bosse B. Randle, R.N., director of public health nursing, Nassau County Health Department, is representative on the Governing Council, APHA.

Miss Gordon's officer colleagues are:

President-Elect—Julius S. Prince, M.D., Jamestown District Office, New York State Department of Health

Vice-Presidents — Meredith H. Thompson, Dr.Eng., assistant director, Bureau of Environmental Service, New York State Department of Health

Charles N. Poskanzer, Health Education Department, Cortland State Teachers College

Treasurer—Marion L. Henry, director, Business Administration, New York State Department of Health

Secretary—Mary C. Egan, public health nutritionist, New York State Department of Health

The treasurer, Miss Henry, was re-elected. She reported a balance of cash on hand of $1,810.70.

This May Be True of Others

Two facts that may be unique among state affiliates have been noted in preparing an item on the recent annual meeting of the New York State Public Health Association:

1. Each of the newly elected officers is a member or fellow of the American Public Health Association.
2. The number of public health disciplines represented equals the number of officers.

APHA AFFILIATED SOCIETIES AND BRANCHES

Society and Secretary

ARIZONA PUBLIC HEALTH ASSOCIATION, Evelyn Longstreet, 225 W. Washington, Phoenix
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Constance Cavender, Alameda Co. Health Dept., 15000 Foothill Blvd., San Leandro
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Gerald A. Heidbreder, M.D., 241 No. Figueroa St., Los Angeles
COLORADO PUBLIC HEALTH ASSOCIATION, Margaret D. Lewis, 659 Cherokee St., Denver
CONNECTICUT PUBLIC HEALTH ASSOCIATION, Mrs. Claire Reinhardt, 310 Cedar St., New Haven
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, San Rafael 1170, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, J. F. Hackney, M.D., 224 Central Ave., S.W., Atlanta
IDAHO PUBLIC HEALTH ASSOCIATION, Mrs. D. W. McDougal, P. O. Box 563, Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William B. Hixon, Evanston Health Dept., Evanston
IOWA PUBLIC HEALTH ASSOCIATION, Mary L. Wombacher, State Dept. of Health, Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Capitol, Topeka
LOUISIANA PUBLIC HEALTH ASSOCIATION, Mrs. Velma Brusse, Dept. of Health, New Orleans
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Helen P. Cleary, 695 Huntington Ave., Boston
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, Mrs. Cassie S. Feagin, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Mrs. Harriet Patterson, Thompson Falls
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Robert Howell, 305 Terrace Ave., N. E., Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Joseph Kadish, 164 W. 174th St.
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mary C. Egan, New York State Department of Health, Albany, N. Y.
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Betty E. Briggs, State Board of Health, Raleigh
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Mrs. Cora Shelstad, Court House, Finley
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Conn, 303 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Conchita Carrasquillo, Apartado 211, San Juan
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Carrie B. Du Priest, State Board of Health, Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Florence S. Dunn, State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, H. E. Drumwright, City Health Dept., Dallas
UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Mildred Engar, Salt Lake City Board of Health, 115 So. State, Salt Lake City
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Muriel Thompson, State Dept. of Health, Smith Tower, Seattle
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Harry M. Huff, State Dept. of Health, Charleston
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison
SOUTHERN BRANCH, A.P.H.A., Joseph M. Bistowish, M.D., P. O. Box 1117, Tallahassee, Fla.
WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

Association News

EIGHTY-FOURTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
ATLANTIC CITY, N. J., NOVEMBER 12–16, 1956
(See May Journal, pages 669, 670, 671, for list of hotels and reservation form)

No Parochialism for School Health

The School Health Section Newsletter of May, 1956, is an eight-page job that goes beyond narrow Section interests. It is in effect an annotated list of what is going on in the school health (and health education) field. Brief descriptions of projects in nine states, new school health items, reports of conferences and workshops, are but a few of the contents.

The Newsletter has been distributed to all members of the Section and to the secretaries of the other Association Sections. Elena Sliepcevich, D.P.E., associate professor of health education, Springfield College, Mass., is section secretary.

Fellows May Join Royal Society

Fellows of the American Public Health Association are now eligible for election to ordinary membership in the Royal Society for the Promotion of Health, according to a recent resolution of the society's council. This is the highest grade of membership to which any person may be directly elected. Annual dues for those outside the British Isles are about $6.

The secretary, to whom all communications should be addressed, is P. Arthur Wells, 90 Buckingham Palace Road, London, S.W. 1.

Invitations to join the society have already been received by many APHA Fellows.

APHA membership application blank on page XXV

SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR 1956–1957

Following action of the Executive Board, on recommendation of the Committee on Professional Education, the American Public Health Association announces the reaccreditation of 13 schools of public health in North America. Each of the schools is accredited for the master of public health degree (M.P.H. in the United States, diploma of public health or D.P.H. at the University of Montreal and the University of Toronto). Nine of the institutions are accredited for the degree of doctor of public health (Dr.P.H.), four for masters' degrees other than the M.P.H. with specialization in public health education.

The schools accredited for the academic year 1956–1957 with the types of degrees for which they are accredited and the names of the deans or directors are as follows:

Institutions Accredited by the American Public Health Association for the Academic Year 1956–1957

Institution	Degrees for Which Accredited		
		Master's	
	Dr.P.H.	M.P.H.	Other (P.H.Ed.)
CALIFORNIA, UNIVERSITY OF School of Public Health, Berkeley 4, Calif. C. E. Smith, M.D., Dean	X	X	—
COLUMBIA UNIVERSITY School of Public Health and Administrative Medicine, New York 32, N. Y. Ray E. Trussell, M.D., Executive Officer	X	X	—
HARVARD UNIVERSITY School of Public Health, Boston 15, Mass. John C. Snyder, M.D., Dean	X	X	X
JOHNS HOPKINS UNIVERSITY School of Hygiene and Public Health, Baltimore 5, Md. E. L. Stebbins, M.D., Director	X	X	—
MICHIGAN, UNIVERSITY OF School of Public Health, Ann Arbor, Mich. H. F. Vaughan, Dr.P.H., Dean	X	X	—
MINNESOTA, UNIVERSITY OF School of Public Health, Minneapolis 14, Minn. G. W. Anderson, M.D., Director	—	X	X
MONTREAL, UNIVERSITY OF School of Hygiene (Teaching in French), Montreal, Quebec, Canada Armand Frappier, M.D., Dean	—	X (D.P.H.)	—
NORTH CAROLINA, UNIVERSITY OF School of Public Health, Chapel Hill, N. C. E. G. McGavran, M.D., Dean	X	X	X
PITTSBURGH, UNIVERSITY OF Graduate School of Public Health, Pittsburgh 13, Pa. Thomas Parran, M.D., Dean	X	X	—
TORONTO, UNIVERSITY OF School of Hygiene, Toronto 5, Ontario, Canada Andrew J. Rhodes, M.D., Director	—	X (D.P.H.)	—
TULANE UNIVERSITY MEDICAL SCHOOL Department of Tropical Medicine and Public Health, New Orleans 12, La. M. E. Lapham, M.D., Dean	X	X	—
YALE UNIVERSITY Department of Public Health, New Haven, Conn. Ira V. Hiscock, Sc.D., Chairman	X	X	X
PUERTO RICO, UNIVERSITY OF Department of Preventive Medicine and Public Health, San Juan 22, Puerto Rico Guillermo Arbona, M.D., Chairman	—	X	—

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication.

POSITIONS AVAILABLE

Deputy Director of Health—Assistant to health director; responsible for medical services in a municipality of 190,000 with suburban area of 325,000. Staff includes four full-time physicians, one full-time public health dentist, several part-time physicians and dentists to man clinics. Health Department adjacent to City Hospital. Position under Civil Service. Requirements: graduate training in public health and practice of medicine and surgery. $9,100–$10,764.

Medical Social Work Advisor—Open to female resident citizens of the United States who possess the minimum qualifications. $4,680–$5,512.

Medical Technologist I—Open to resident citizens of the United States who possess the minimum qualifications. $3,432–$3,900.

Anesthetist—Open to female resident citizens of the United States who possess the minimum qualifications. $3,692–$4,108.

Write Personnel Director, Municipal Bldg., Hartford, Conn.

Deputy Director of Public Health—available January 1, 1957. M.D., licensed to practice in Virginia. Staff of 47 serves progressive urban area adjacent to Washington, D. C. Generalized public health program. Initial salary $8,200 per year. Write, giving qualifications, to Director of Public Health, Alexandria, Va.

Director, Bureau of Medical Services—to supervise and conduct preschool and school health programs and communicable disease control. Requirements: physician with M.P.H., and at least three years' experience in public health. Salary range $8,000–$9,000; vacation, sick leave, and Civil Service benefits. Must be eligible to practice in Connecticut. Write Director of Public Health, City Hall, New Haven 10, Conn.

Assistant Health Officer—Prince Georges County, Md. Population 300,000; borders Washington, D. C. Salary open; good prospects for advancement. State qualifications, experience, in first letter. Requires eligibility for Maryland licensure. Address County Health Officer, Hyattsville, Md.

Public Health Physician—for director of City-County Health Department in a progressive community of 60,000 population with high medical and hospital standards and having a full-time Health Department for 30 years and offering an excellent opportunity for continued program development. Health Department staff includes public health nursing, dental, and sanitation personnel. Merit System, excellent state retirement plan, and Social Security. Desire director well qualified in public health and preventive medicine. Entrance salary dependent on qualifications. Present salary range provides $12,480 maximum. Area provides fine family environment with excellent school, cultural, and recreational facilities. Inquire Secretary, City-County Board of Health, Civic Center, Great Falls, Mont.

Health Officer—Coos County. Salary to $12,000 to start, depending on qualifications. Preference will be given to younger applicants (not over 50) who have an M.P.H. degree and some public health administration experience. License to practice medicine in Oregon required for continued employment. Position is under merit system; Social Security supplemented by State Retirement. Apply to Mr. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland 7, Ore.

Physicians—Semirural West Virginia medical groups need public health-oriented gen-

eral physicians. Broad and challenging program, excellent facilities, and hospital affiliation. Guaranteed initial $12,000 net income may be greater if location and experience warrant. Write Placement Service, Hygeia Facilities Foundation, Inc., Box 1023, Charleston, W. Va.

Public Health Veterinarian—for position of chief, Environmental Health. To direct milk, meat and food programs; supervise 24 persons; assist health commissioner in program planning, budget-making and public relations. Epidemiology of zoonoses. Applicant should be no more than 35 years of age. Some experience in public health or related fields desirable. Salary $6,120 to start, plus allowances; City Civil Service status; liberal pension plan, vacation, and sick leave. Write Commissioner of Health, 3rd Floor, City Hall, Fort Wayne, Ind.

Public Health Nurses—Generalized program with some school nursing. Mostly rural, on the coast where it is never hot. Salary $392 to $491, in five yearly steps; car furnished for work. Must be eligible for California registration and driver's license. Eleven paid holidays, ten days' vacation with pay. Apply to Dr. L. S. McLean, Director, Humboldt-Del Norte Health Dept., Box 857, Eureka, Calif.

Qualified Public Health Nurse—Must be eligible for California certificate. Salary $376–$458; travel allowance for use of private car. Write to San Benito County Health Dept., Health Center Bldg., Hollister, Calif.

Public Health Nurse—Generalized public health program, Napa County, 50 miles from San Francisco. Salary range $341–$415; liberal benefits; starting salary dependent on training and experience. Automobile required; car allowance. For job description and application, contact Sterling S. Cook, M.D., Director of Public Health, P. O. Box 749, Napa, Calif.

Public Health Nurses—for generalized program. Liberal personnel policies; 37½-hour week. Own car, eight cents per mile travel allowance. Beginning and intermediate positions are available. Beginning salary, depending on experience and qualifications, $3,600 and up, with automatic increases. Apply: Director, Northeast Colorado Health Dept., 700 Columbine St., Sterling, Colo.

Qualified Public Health Nurses—for staff positions in a rural generalized public health nursing program. Forty-hour week, 15 days' vacation per year, sick leave, retirement plan, 7½ cents per mile travel reimbursement plus per diem. Salary $4,368–$5,304. Nevada State Personnel Dept., Carson City, Nev.

Public Health Nurse-Instructor—Opening for qualified public health nurse in Maternal and Child Health Division. Service-teaching program with participation in research activities. Bachelor's degree desired. Approved PHN program and one year's experience required. Beginning salary depending on experience and qualifications. Opportunity for study. Other employee benefits. Write Miss Elizabeth M. Edmands, Assistant Professor, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Md.

Public Health Nursing—Positions available in Health Department with the City of Flint, a rapidly growing city of 180,000 population. Beginning, intermediate, and administrative positions are available. Five-day, 40-hour week, with liberal retirement, vacation, and sick leave policies. Car furnished. Beginning salary rates: $3,952, $4,329, or $4,654, depending on experience and qualifications. Automatic increases and longevity rates for length of service. Apply Flint Civil Service Commission, City Hall, Flint, Mich.

Public Health Nurse—qualified for supervision of small nursing staff; generalized program; 37½-hour week; nine paid holidays; 20 working days' vacation; sick leave. Beginning salary $4,000 and up, depending on qualifications. Annual increments. Own car, travel allowance. Four-county unit. College town. Write to C. A. E. Lund, M.D., Director, Copper Country District Health Dept., 106 Shelden Ave., Houghton, Mich.

Public Health Nurse Supervisor—Qualifications: Four years' experience in recognized public health agency, one of which shall have been in supervisory capacity. Possession of certificate of public health training and eligibility to practice nursing in the state of Virginia. Salary range $372–$447. Civil Service Commission, Room 203, City Hall Annex, Norfolk, Va.

Public Health Nurse Superintendent—Qualifications: Five years' experience in recognized public health agency, two of which shall have been in supervisory or teaching capacity. Possession of certificate of public health training and eligibility to practice nursing in the state of Virginia. Salary range $426–$512. Civil Service Commission, Room 203, City Hall Annex, Norfolk, Va.

Industrial Hygienist—Well established chemical manufacturers in Midwest have opportunity for an industrial hygienist to help supervise and carry out an expanding health program. Experience with hazards of radioactivity essential. Please submit full details of background and experience in letter to **Box IH-7,** Employment Service, APHA.

Director of Sanitation—with Midwest city of 80,000. Administration of sanitation, food, sanitary fill, and miscellaneous health programs. B.S. in sanitary or public health engineering and some experience. $500–$620 per month. For application write Board of Health, City Hall, St. Joseph, Mo.

Sanitationist—Meeting APHA educational requirements and eligible for Connecticut licensure for position as head of all work in environmental sanitation in city health department. Retirement and other benefits. Salary dependent upon training and experience. Write: Christopher E. Dwyer, M.D., President, Board of Health, Waterbury, Conn.

Executive of Metropolitan Nutrition Council—to coordinate, plan, and develop community nutrition education and to serve as liaison with Graduate School of Public Health in public health nutrition research. Qualifications: B.S. in Foods and Nutrition, with M.P.H. or M.S. in nutrition; community experience in agency and/or nutrition work in university. Salary open. Write **Box N-8,** Employment Service, APHA.

Bacteriologist—Degree with specialization in laboratory technology. Experience in the tuberculosis field desirable. Position at Central Maine Sanatorium, Fairfield, Maine. Salary determined by background and experience. For further information and application, please write Personnel Officer, Health and Welfare Dept., State of Maine, Augusta, Maine.

Dental Hygienist—To carry out the dental hygiene program for the school children of Contra Costa County, Calif. Must have a California license and have completed a four-year curriculum in dental hygiene in an approved university, or have completed a two-year curriculum with two years of practical experience. Salary $414–$496 per month. Contact Box 710, Martinez, Calif.

Executive Director (Male)—for Hartford Heart Association. Chapter serves urban area plus 20 surrounding towns. Qualifications: Master's degree in public health or social work plus several years' agency administration, including supervision of both professional and clerical staff, plus program activities. Some heart association experience desirable, but not essential. Salary dependent upon qualifications. Progressive personnel policies. Write J. Harold Williams, 49 Pearl St., Hartford 3, Conn.

A leading national voluntary health association has openings in various parts of the country in many categories—**Field Workers, Health Educators, Executive Secretaries, Executive Directors.** Master's degree in health or related fields desirable, but not essential. Some experience in public health, community organization or administration of voluntary health agency required. Positions and salaries commensurate with education, experience, and placement. Please send resume to **Box C-31,** Employment Service, APHA.

Industrial Health Engineer—University Industrial Health Program, University of California at Los Angeles. Graduate in engineering from accredited college or university. Minimum four years' experience in public health engineering. Eligible for professional registration in California. Salary range $530–$644 in 5 per cent steps. Retirement program. Write Fred R. Ingram, Chief Industrial Health Engineer, Division of Occupational Health, Cowell Memorial Hospital, Berkeley, Calif.

International Vacancies

Malariologists, Public Health Administrators, Public Health Engineers, Public Health Nurses, Nurse Educators—There are several positions open in Latin America and the Caribbean for persons in the above categories. The essential qualifications are public health training and extensive field experience. Malariologists need considerable experience in malaria programs and use of the new residual insecticides. Nurses require advanced training in public health nursing or nursing education, as well as extensive experience in supervision, administration and/or teaching. Spanish is desirable in nearly all cases. Salaries and allowances range from $6,000 to $11,000 per annum. For further particulars, write to the Personnel Officer, PASB/WHO, 1501 New Hampshire Ave., Washington 6, D. C.

POSITIONS WANTED

Public Health Educator—M.P.H.; eight years' official agency experience on state, district and county levels plus 14 years' school administration and teaching experience. Want state or district level directorship in official or unofficial agency. Write **Box HE-76,** Employment Service, APHA.

Bacteriologist—M.S., two years public health lab assistant, one year veterinary diagnostic bacteriologist, one year research assistant, two years public health bacteriologist, two years director clinical and general chemistry laboratory. Desires change in employment to large general hospital or veterinary lab, preferably in Midwest. Write **Box L-51,** Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Public health director, medical school city, East: $14,000. (b) Public health physician to serve as epidemiologist on preventive medicine staff; foreign operations, one of leading industrial companies; $14,000 plus family maintenance. (c) Director, health department, Mariana Islands. (d) Director, student health; 5,000 students; university, resort city, Southwest. (e) Assistant or associate professor of nursing; basic four year program; fully accredited college school of nursing; $525 month; New York. (f) Educational director, staff, education program VNA; minimum $5,670 and expenses, retirement plan; Midwest. (g) Nurse consultant; state department of public health; minimum $5,300, travel expenses; South. (h) Executive secretary, health section, community welfare planning council; young man, MPH; East; $6,500–$7,750. (i) Health educator to serve as executive secretary, health council composed of 55 community and welfare organizations; interesting city outside U. S. (j) Industrial hygiene engineer; state health department; $500–$600; Pacific Northwest. (k) Health inspector experienced meat and dairy products inspection; foreign; $700.

OPPORTUNITIES WANTED

(a) Public Health physician; M.P.H., Hopkins; six years, director, city health department, four years, professor, preventive medicine. (b) Public health nursing administrator; B.S., Ed., M.P.H.; seven years' experience as public health nursing administrator and teacher. (c) Health educator; M.S., D.P.H., five years' teaching; eight years, director, health education, state health department. (d) M.P.H.; since 1949, supervisor of sanitation and director of environmental sanitation training, state health department.

1957–1958 Fulbright Awards

Details of Fulbright awards for the academic year 1957–1958 under the auspices of the Department of State have been announced by the Committee on International Exchange of Persons. In an 80-page booklet, university lecturing and advanced research possibilities in Europe, the Near East, the Far East, Africa, and Latin America are described. For these, October 1, 1956, is the final date for receiving applications.

A number of awards particularly in the research field are relevant to the public health profession—for example, Nutrition and Biochemistry at the Technical University of Denmark, Bacteriology and Anthropology at the Ecole Preparatoire de Médecine of the University of Dakar, Cancer Research at the University of Perugia, Microbiology at the Istituto Superiore di Sanita, Rome. There are also a number of lectureships in social work, sociology, and community organization in various parts of the world.

The booklet and further information can be obtained from the Executive Secretary, Committee on International Exchange of Persons, Conference Board of Associated Research Councils, 2101 Constitution Avenue, Washington 25, D. C.

News from the Field

WHO News

Ninth World Health Assembly Round-Up

The technical discussions of the Ninth World Health Assembly meeting in Paris, June 11–25, centered around the subject, "Nurses, their education and their role in health programs." Dame Elizabeth Cockayne, chief nursing officer of the British Ministry of Health, was chairman of the discussions shared in by all the delegates. The essential responsibilities of the professional nurse, as agreed upon are: skilled nursing care, health teacher, accurate observation and reporting of patients' physical and emotional state, training and guidance of auxiliary personnel, and participation in planning of services, facilities, and equipment needed.

The Ninth Assembly increased WHO's membership to 88. Full membership was granted to three newly independent states, Morocco, Sudan, and Tunisia, previously associate members. The Gold Coast, Nigeria, and Sierra Leone were accepted as associate members.

The assembly approved a program in the atomic energy field covering training of public health personnel, development of standards, studies of health risks in radiation and radioactive waste disposal.

Countries were urged to proceed as rapidly as possible with the malaria eradication program to avoid the possible danger of mosquitoes developing resistance to insecticides. The long run economy in expenditures for an eradication program was stressed.

Particularly in view of its tendency to affect wider and wider classes of the population, delegates agreed that WHO should intensify its work and studies concerning heart disease.

The special sections of the International Sanitary Regulations with respect to Mecca pilgrimages were abolished. Hereafter, these pilgrims will be subject only to the same regulations as any "persons taking part in periodic mass congregations." According to the regulations each country applying them is required to enforce adequate standards of hygiene on ships and planes carrying participants in mass congregations, be they migrants, seasonal workers, or pilgrims.

Another Latin-American Milk Plant

The third milk drying plant in Latin America, the first in Costa Rica, was opened in late April and offers "the republic's most promising solution to the problem of protein deficiency among children." The plant has a capacity of 1,500 liters a day and is operated by a Milk Producers Cooperative in connection with a pasteurizing plant. Milk consumption is already rising in response to an educational program—from 17,000 to 31,000 bottles a day in a single year.

UNICEF's contribution of $106,100 for drying equipment is being matched by the Costa Rican government's expenditure of $435,000 for five years for plant construction and free milk distribution to mothers and children.

The World Pageant of WHO

To get the wide sweep of WHO's impact on the world, the "Chronicle" has published a review of WHO General Director Candau's report in the April, 1956, issue. Under five main headings—communicable diseases, public health services, environmental sanitation, education and training, and other activities and services—what WHO is helping various corners of the world to accomplish is detailed. Activities are described in main categories such as nutrition, mental health, etc. A list of projects is given for each of the main headings. These projects run into the hundreds

and range from international and regional conferences on a variety of health subjects, organization of centers such as the influenza and treponematosis laboratory and tuberculosis teaching centers, dispatch of survey teams, training courses and seminars of every variety, technical assistance teams as requested by governments, to mention but a few.

Chronicle of the World Health Organization, 10:4 (Apr.), 1956, Columbia University Press, 2960 Broadway, New York 27. 30 cents per issue, $3 annually.

Central America Nutrition Institute

The Institute of Nutrition of Central America and Panama (INCAP), created in 1949, is described briefly in the May, 1956, issue of "Chronicle of the World Health Organization." The institute, located in Guatemala City provides its six member states—Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama—with a technical center for the investigation and solution of their nutritional problems. The costs are shared jointly by the six nations with administrative direction and supervision by the Pan American Sanitary Bureau. WHO subsidizes to promote evaluation studies of vegetable foods and food preparation to prevent protein deficiency.

Among the ways in which the institute carries out its purposes are clinic studies of nutrition, surveys of dietary needs and habits, analysis of local foods, studies of animal nutrition, training of nutrition specialists, and nutrition education of the public.

The Department of Food Technology of the Massachusetts Institute of Technology and the W. K. Kellogg and Rockefeller Foundations are collaborators. The Food and Agriculture Organization of UN maintains close liaison particularly as to diet surveys and food composition tables.

Lasker Awards for Medical Reporting

The 1955 winners of the Lasker Medical Journalism Awards were presented at a recent luncheon in New York City. Howard A. Rusk, M.D., presided and speakers were Leona Baumgartner, M.D., and Representative J. Percy Priest of Tennessee.

The awards, consisting of $1,000 and a silver statuette of the Winged Victory of Samothrace, are given for outstanding reporting on medical or public health subjects. Selig Greenberg, staff writer of the Providence Journal and Evening Bulletin; Joan Geyer, staff writer of the Provo (Utah) Daily Herald; Steven M. Spencer, associate editor of the Saturday Evening Post; and Smith, Kline and French Laboratories for their "March of Medicine" television program, are the 1955 winners.

Atomic Conference Report in English

The English-language edition of the "Proceedings of the International Conference on the Peaceful Uses of Atomic Energy" is now complete in 16 volumes, totaling 7,882 pages. They contain the papers and verbatim records of the International Conference held in Geneva in August, 1955, under United Nations' auspices. It is expected that the complete Proceedings will also be published in French, Russian, and Spanish during 1956.

Among the volumes with particular relevance for public health and medicine are: X, Radioactive Isotopes and Nuclear Radiations in Medicine; XI, Biological Effects of Radiation; XIII, Legal, Administrative, Health, and Safety Aspects of Large Scale Use of Nuclear Energy; XIV, General Aspects of the Use of Radioactive Isotopes: Dosimetry.

The cost of the separate volumes varies from $5 to $10; the entire set is

$130. Columbia University Press, 2960 Broadway, New York 27.

Israeli Journal in English

Tavruah, formerly published in Hebrew by the Association of Directors of Sanitation Services in Israel, uses the April, 1956, issue to carry the World Health Organization, 1956 theme, "Destroy Disease Carrying Insects." The journal, published at 26, King George Avenue, Jerusalem, also marks the consolidation of two organizations in Israel interested in sanitation, the Association of Directors of Sanitation Services in Israel and the Association of Sanitarians in Israel. This issue notes "Now published for the first time in English, this journal provides a medium for the exchange of technical knowledge in the sanitation field . . . will serve as well, albeit modestly, as a medium of international friendship and understanding."

Ittleson Chair of Child Psychiatry at Washington University

Chancellor Ethan A. H. Shepley of Washington University, St. Louis, Mo., has announced a gift of $400,000 to endow the Blanche F. Ittleson Chair of Child Psychiatry in the School of Medicine. This will be the first endowed professorship of child psychiatry in the United States. It is intended to strengthen the university's over-all program in child health and child development, especially the work carried on at the Washington University Community Child Guidance Clinic.

The Ittleson Family Foundation, established in 1932, marks its 25th anniversary next year. Mrs. Ittleson, a native of St. Louis, is the widow of Henry Ittleson who founded the C.I.T. Financial Corporation in St. Louis in 1908.

Mrs. Ittleson, a former student at Washington University, has been a pioneer for 40 years in the field of mental health. She was active in establishing in 1953 the Ittleson Center for Child Research in Riverdale, N. Y., for research and treatment of emotionally disturbed children.

New York City Committee Tells Fluoridation Facts

A Committee to Protect Our Children's Teeth has been created in New York City to spread facts and correct misinformation on fluoridation of water supplies. Chaired by Benjamin Spock, M.D., visiting professor of child development, Western Reserve University, the committee includes more than 125 medical, dental, and civic leaders from many parts of the country. The committee will concentrate on New York where the Board of Health has repeatedly recommended the fluoridation of water supplies. It is expected that "New York's decision will be pivotal in advancing the measure across the country."

Vice-chairmen of the committee are Thomas Parran, M.D., dean, University of Pittsburgh Graduate School of Public Health; William P. Shepard, M.D., second vice-president, Metropolitan Life Insurance Company; Mary W. Lasker, president of the Lasker Foundation; and Basil O'Connor, president of the National Foundation for Infantile Paralysis. Both Ira V. Hiscock, president of the American Public Health Association, and its executive secretary, Reginald M. Atwater, M.D., serve on the committee along with numerous other Fellows and members of the Association. A dental advisory committee is headed by C. Raymond Wells, D.D.S., president of the New York Academy of Dentistry, and includes also Emory W. Morris, D.D.S., president of the W. K. Kellogg Foundation, and Francis Arnold, Jr., D.D.S., director of the National Institute of Dental Research.

Cooperative Atherosclerosis Research

A group of scientists from four institutions met in San Antonio, May 31–June 1, to plan an intensive voluntary program of research on atherosclerosis. The institutions represented are the Louisiana University Medical School, the Oklahoma Medical Research Foundation, the Southwest Foundation for Research and Education, and the Enzyme Institute of the University of Wisconsin.

These four groups will collaborate in this "institute without walls" to bring joint efforts to bear on the problems of atherosclerosis. Enzyme Institute members are contributing highly specialized knowledge and equipment for studying relation of enzymes to the problem. The Oklahoma group contributes a cardiovascular clinic and laboratory facilities, including ultracentrifuges. Louisiana State University's pathology laboratories provide electron microscopic studies of blood vessels in addition to the standard facilities. At the Southwest Foundation the perfusion technic is being used to study the chemistry of the blood vessels and to isolate important substances having a bearing on atherosclerosis.

Virginia Already Has 300 Members

At the second annual meeting of the Virginia Public Health Association held in Roanoke, May 1, a membership of 315 was reported. The laboratory section was the first to be organized and a health education section was approved, with interest evident for sanitation and statistics sections. The association also moved to apply for affiliation with the American Public Health Association.

Rural Aspects of Public Health in the Future, the main address by Earl Loman Koos, professor of social welfare, Florida State University, set the stage for the day's discussions.

S. D. Sturkie, M.D., director, Charlottesville-Albemarle County Board of Health, was the first president of the association. He was succeeded by Charles L. Outland, M.D., director of medical service, Richmond Public Schools. Nancy E. Lutz, health education consultant, Virginia Tuberculosis Association, is secretary.

Another Pennsylvania Consolidation

Another of the growing list of tuberculosis society mergers is represented by the new Susquehanna Tuberculosis and Health Society. The new society is made up of three former societies of Snyder, Union, and Western Northumberland Counties and representing a population of upwards of 100,000. Rachel S. Bell, executive secretary of the Northumberland Society, serves in the same capacity for the new society.

Award for U. S. Health Exhibit

A European display, featuring contributions from the American Public Health Association, won for Howard Ennes, director of the Bureau of Public Health for The Equitable Life Assurance Society, an award for leadership in international public health exhibits. Mr. Ennes received a silver cup from Clair E. Turner, Dr.P.H., president of the International Union for Health Education of the Public, for his role in planning the "Citizens' Role in Public Health" exhibit, part of the Third International Conference on Health Education held recently in Rome, Italy. The exhibit dramatized public health activities by 30 communities throughout the United States.

Other agencies taking part in the United States display were: the American Association for Health, Physical Education, and Recreation; the American School Health Association; Con-

ference for Health Council Work; National Conference for Cooperation in Health Education; National Health Council; National Safety Council; and the Society of Public Health Educators.

Mr. Ennes was elected vice-president of the international health organization.

Sanitation Short Course

The annual Food Plant Sanitation Short Course, sponsored by the University of Illinois, will be held August 27–September 1. It will cover food plant sanitation including practical pest control procedures. The $50 fee covers text materials, field trips, and planned luncheons. Housing will be in the University Residence Hall. Richard R. Marsh, Food Technology Department and the Division of University Extension, is coordinator. Further information from R. L. Johnston, Conference Supervisor, 116 C Illini Hall, University of Illinois, Champaign.

Further Engineering Recruitment

"Opportunities in Civil and Public Engineering" is a recent three-installment effort on the part of Public Works Magazine to encourage the flow of young people to engineering specialties. The editor, William A. Hardenbergh, explains, "It is essential that young men planning their careers are fully acquainted with the advantages and opportunities that exist in the civil and public works engineering field."

Each installment consists of statements on four phases of engineering by leading engineers who try to answer such questions as, "What the field covers," "Preparation and training," "How to get started," "How to progress," and "Rewards" of their particular specialty.

The installments and the date of publication are:

March—The County Engineer, Jasper F. Meisner; The City Engineer, Max Sturm; The City Manager, C. A. Harrel; The State Highway Engineer, Rex M. Whitton

May—Public Health and Sanitary Engineering, Blucher A. Poole; Water Supply and Treatment, Karl Hoefle; Sewerage and Sewage Disposal, Arthur A. Niles; Teaching, The Professor in Civil Engineering, Ben Petty

July—Consulting Engineers, Sherman Chase; Construction and Contracting, R. O. Nelson; Research, Gerald A. Rohlich; Sales Engineering, Joseph P. Lawlor

Single reprints are available free; any professor of civil engineering may receive as many as 20 for distribution to high school students. Larger numbers available at cost. Public Works Magazine, 200 S. Broad St., Ridgewood, N. J.

Dr. Bierring Receives AMA Distinguished Service Medal

At the Annual Meeting of the American Medical Association in Chicago in June, Dr. Walter L. Bierring, formerly state health officer of Des Moines, Iowa, was selected by the House of Delegates to receive the Distinguished Service Medal.

A native of Iowa, where he was born in Davenport 88 years ago, Dr. Bierring graduated from the State University of Iowa College of Medicine, following which he studied in Europe for several years. He spent ten years as professor of pathology and bacteriology at his alma mater and another ten years as professor of the theory of the practice of medicine. For 20 years he was state health officer of Iowa. For more than 32 years he has been president of the Alpha Omega Alpha honorary medical society, was one of the founders of the American Board of Internal Medicine and the American Board of Preventive Medicine, and has been secretary and editor of the Federation of State Medical Boards for 41 years. He was president of the American Medical Association in 1934.

Dr. Bierring received the citation and a gold medal at ceremonies in the Civic Opera House in Chicago on June 12 "in recognition of his achievements in public health and for his experience in medical examining board work."

Dr. Scheele Resigns as Surgeon General

The resignation of Leonard A. Scheele, M.D., Surgeon General, U. S. Public Health Service, Washington, was announced on June 29 after 23 years of service in the USPHS. Dr. Scheele had been reappointed for his third four-year term in April, 1956. The effective date of the resignation was August 1.

It was announced in New York that Dr. Scheele would become president of the Warner-Chilcott Laboratories, a manufacturing and distributing unit of the Warner-Lambert Pharmaceutical Company with offices in Morris Plains, N. J.

President Eisenhower in accepting Dr. Scheele's resignation said, "I should like to extend to you my personal thanks, and, on behalf of the people of the United States, sincere appreciation and gratitude for your outstanding contributions to the cause of better health during your long years of service."

Plaque Honors Dr. Carl M. Peterson

The late Carl M. Peterson, M.D., who served 17 years as secretary of the American Medical Association's Council on Industrial Health and who died late in 1955 from airplane injuries, was honored by President Eisenhower's Committee on Employment of the Physically Handicapped which presented to the American Medical Association a memorial plaque honoring Dr. Peterson for his lifetime devotion "to the increasing health, welfare and employment opportunity of his fellow man." Dr. Peterson was former chairman of the Medical Committee of the President's committee. Dr. Peterson was an officer of the Occupational Health Section, APHA, 1943–1948.

PERSONALS

JOSEPHINE J. ALBRECHT,* former executive secretary, Health Section, United Community Services of Washington, D. C., has resigned to become executive secretary, Council on Rehabilitation, Medical Society, District of Columbia.

GERTRUDE L. ANNAN, former associate librarian, has succeded JANET DOE, retired, as librarian, New York Academy of Medicine.

DAVID B. AST, D.D.S.,* director, Bureau of Dental Health, New York State Health Department, Albany, has received the Worcester District Dental Society's Hanrahan Award, presented biennially to the individual contributing the most to organized dentistry.

JOSEPH C. AUB, M.D.,* professor of research medicine, Harvard University, chairman, Department of Medicine, Harvard Medical School, and director of the school's laboratories in the Collis P. Huntington Memorial Hospital, Boston, Mass., has retired and been named emeritus professor of research medicine.

J. DARRELL BAKKEN,† former sanitary engineer, Medical Service Corps, USA, is now on the staff of the Sanitary Engineering Division, South Dakota State Health Department, Pierre, assigned to water sanitation work.

ROLAND H. BERG, medical editor of Look Magazine, was recently given a Benjamin Franklin Magazine Award by the University of Illinois for his article, "The Truth About the Salk Vaccine," that appeared in Look, July 26, 1955.

HARRY L. COBEAN, M.D., has been appointed director of the newly established Wellington-Sumner County (Kans.) Health Department.

F. EDWARD COUGHLIN, M.D., Dr.P.H.,* former chief, Division of Public Health, USOM—Indonesia, International Cooperation Administration, is now regional medical director, Regional Office IV, Pennsylvania State Department of Health, Pittsburgh.

GEORGE W. COX, of the Tulare County (Calif.) Health Department staff, has been named director of sanitation.

HORACE DELIEN, M.D.,* chief, Health Division, International Cooperation Administration, Philippines, has been made a charter Diplomate in the Philippine Board of Public Health and Preventive Medicine.

* Fellow.
† Member.

JOHN HOLMES DINGLE, M.D.,* professor, Western Reserve University, School of Medicine, Cleveland, Ohio, has been appointed to a special 14-member committee to recommend a plan of distribution of a $90,000,000 appropriation by the Ford Foundation to the nation's privately supported medical schools.

JESSE C. ELLINGTON, M.D., M.P.H.,* former director, Health and Welfare, Lynchburg, Va., is now director of public health, San Antonio, Tex.

T. A. EVANS, former administrative officer, Health Education Section, South Dakota State Health Department, Pierre, has resigned to become a dairy marketing specialist, Extension Service, University of Nebraska, Lincoln. He has been succeeded by LOUIS REMILY, sanitarian, Environmental Sanitation Section.

WILLIAM G. FREDRICK, Sc.D.,* director, Bureau of Industrial Hygiene, Detroit (Mich.) Health Department, has received the 1956 Anachem Award from the Association of Analytical Chemists, an affiliate society of the Detroit Section of the American Chemical Society, for his many contributions to analytical chemistry, particularly in the field of industrial health and air pollution.

JOSEPH A. GALLAGHER, M.D., former clinical director, Public Health Service Hospital, Staten Island, N. Y., has been appointed medical officer in charge of the Indian Health subarea office in Anchorage, Alaska, and subarea director for the Alaska Native Health Service in western Alaska.

DEL GARDNER, former assistant campaign director, American Social Hygiene Association, New York City, has been appointed associate director in charge of campaign.

HARRY V. GIBSON, M.D.,† former health officer, Great Falls City-County Health Department, Mont., is now deputy commissioner of health for Alaska.

COL. ALBERT WRIGHT GREENWELL, M.D. (MC USA, Rtd.), former physician, Botany Worsted Mills, is now health officer of Montclair, N. J.

MATTHEW H. GRISWOLD, M.D.,* chief, Division of Cancer and Other Chronic Diseases, Connecticut State Department of Health, has been awarded the 1955 American Cancer Society Medal for the state cancer record registry maintained for over two decades.

KATHARINE H. HAIN, M.D., former chief, Bureau of Heart Disease, New Jersey State Department of Health, has been appointed a medical writer of Schering Corporation, Bloomfield.

THOMAS A. HART, Ph.D.,* chief, Education Division USOM to Bolivia, was a member of the United States delegation to the recent Second Inter-American Conference of Ministers of Education meeting in Lima, Peru, and has been named acting director, Servicio Cooperativo Interamericano de Salud Publica (Division of Health and Sanitation USOM to Bolivia) in La Paz, Bolivia.

JOSEPH K. HILL, Ph.D.,† former assistant to the dean, State University of New York College of Medicine in Syracuse, has been named executive secretary of the university's Brooklyn Medical Center and associate professor of medical administration.

DORA LOUIS JACOB, R.N., who recently completed work for the B.S. degree in public health nursing at Peabody College, is now assistant public health nurse supervisor, District No. 5 Office, Division of Health of Missouri, with headquarters in Springfield.

REUBEN L. KAHN, D.Sc.,† chief of clinical laboratories, University of Michigan, was honored at a Commemoration Dinner on June 29 in Ann Arbor, recalling his many contributions to immunology.

PAULA KESSEL, staff member, Dayton (Ohio) Hearing and Speech Society, has been awarded the 1956 Kenfield Memorial Scholarship made annually to a prospective teacher of lipreading.

LORRAINE V. KLERMAN, M.P.H.,† former executive director, Passaic County (N. J.) Heart Association, has resigned to do further graduate work at the Harvard School of Public Health, Boston, Mass. She has been succeeded by BARBARA W. HENRY.

MRS. ALBERT D. LASKER,* president, Albert and Mary Lasker Foundation, New York City, has been appointed to a special 14-member committee to recommend a plan of distribution of a $90,000,000 appropriation by the Ford Foundation to the nation's privately supported medical schools.

EDWARD H. LEVEROOS, M.D., former director, Division of Hospitals and Graduate Education, Council on Medical Education and Hospitals, American Medical Association, is now director, Ochsner Foundation Hospital, New Orleans, La.

HENRIK M. C. LUYKX, D.Sc.,* chief, Biometrics Division, Directorate of Plans and Hospitalization, Office of the Surgeon General, USAF, recently received a citation and meritorious civilian award for distinguished services, superior planning and execution of assigned functions, and able representation

* Fellow.
† Member.

of the Surgeon General at both national and international conferences.

MELVILLE H. MANSON, M.D.,* former medical director, American Telephone and Telegraph Company, has been appointed scientific director, Muscular Dystrophy Associations of America, New York City, which has recently joined the group of national health agencies at 1790 Broadway.

AIMS C. MCGUINNESS, M.D.,† clinical director, Memorial Hospital Association of Kentucky, United Mine Workers Welfare and Retirement Fund, has resigned to reenter private practice in Philadelphia, Pa.

PAUL MICO,† formerly in the Northeast District Office, Ohio State Health Department, is now director of health education, Wyoming State Health Department, Cheyenne.

AGNES M. OHLSON, chief examiner, Connecticut Board of Examiners for Nursing, was reelected president of the American Nurses' Association for the second two-year term, 1956–1958, at the recent ANA convention.

RUTH PENNEBAKER, R.N., M.P.H., has been appointed nursing supervisor, Minnesota Department of Health, assigned to Anoka, Dakota, and Washington Counties.

MARTHA D. RING,† health economist, Division of Public Health Methods, Public Health Service, has retired. She now resides at 801 Tolita Ave., Coronado, Calif.

RALPH R. SACHS, M.D.,* former director of district services, has been appointed executive officer, Los Angeles (Calif.) City Health Department, succeeding H. C. PULLEY, M.D.,* who has become director of adult services.

CARL L. SEBELIUS, D.D.S.,* on a two-year leave as chief, Division of Dental Health, Tennessee Department of Health, is the new dental officer, World Health Organization, succeeding JOHN W. KNUTSON, D.D.S.,* who has returned to his duties as chief dental officer, Public Health Service.

MILTON SHURR,* former secretary, Health Division, Council of Social Agencies, New Haven, Conn., has succeeded MARY CHAMPLIN * as executive secretary, Health Division, Health and Welfare Federation, Pittsburgh, Pa.

ANDREA SMARGON, former campaign publicity director, United Cerebral Palsy of New York City, is now public relations director, American Social Hygiene Association.

HAROLD THROOP, health educator, Philadelphia (Pa.) Tuberculosis and Health Association, has resigned to become organizer for x-ray surveys, Tuberculosis Society of Columbus and Franklin County, Ohio.

ANTOINETTE TRIGLETH, former staff nurse, has been appointed director, Public Health Nursing, Tulare County (Calif.) Health Department.

GERARD T. UHT, who recently became director of public relations, Pennsylvania Tuberculosis and Health Society, has now been appointed executive secretary, Crawford County Tuberculosis and Health Society, Meadville, Pa.

GEORGE W. WATSON,† former health administrator, Baltimore City Health Department, Md., is now consultant in health education, Calhoun County Health Department, Battle Creek, Mich.

DONALD V. WILSON, secretary-general, International Society for the Welfare of Cripples, has received the 1956 Goodwill Award given annually by Goodwill Industries of America for outstanding service to handicapped people, for his achievement in developing interest in and coordinating services to handicapped people on an international scale.

* Fellow.
† Member.

DEATHS

CLYDE E. ARBEGAST, M.S.,* staff associate, Health and Welfare Planning Department, United Community Funds and Councils of America, New York, N. Y., on May 18 (Public Health Education Section).

DONALD A. COWAN, M.D.,† director, Chippewa-Luce-Macinac Health Unit (Mich.), in March, at the age of 48 (Health Officers Section).

LEON G. TEDESCHE, M.D.,† of Miami, Fla. (Laboratory Section).

RAYMOND M. WALLS, D.D.S.,* founding member of the Subcommittee on Medical Care, APHA, on June 16 (Medical Care Section).

CONFERENCES AND DATES

American Public Health Association, 84th Annual Meeting, Atlantic City, N. J. Headquarters: Convention Hall, Atlantic City, N. J., November 12–16.

State and Regional Public Health Meetings:

Florida Public Health Association. Clearwater, Fla. October 18–20.

Minnesota Public Health Association. Minneapolis, Minn. September 27–28.

New Mexico Public Health Association. Albuquerque, N. M. October 17–19.

Pennsylvania Public Health Association. Pennsylvania State University, University Park, Pa. August 20–23.

South Dakota Public Health Association. Custer, S. D. September 12–14.

Washington Public Health Association. Longview, Wash. September 30–October 2.

Meetings of Other Organizations Coming in August, September, and October, 1956:

American Academy of Pediatrics. New York, N. Y. October 6–11.
American Association of Medical Record Librarians. Washington, D. C. October 1–5.
American Dental Association. Atlantic City, N. J. October 1–4.
American Dietetic Association. Milwaukee, Wis. October 9–12.
American Heart Association. Cincinnati, Ohio. October 27–31.
American Hospital Association. Palmer House, Chicago, Ill. September 17–20.
American Occupational Therapy Association. Minneapolis, Minn. October 1–4.
American Veterinary Medical Association. San Antonio, Tex. October 15–18.
Federation of Sewage and Industrial Wastes Association. Los Angeles, Calif. October 8–11.
International Association of Milk and Food Sanitarians. Hotel Olympic, Seattle, Wash. September 5–7.
International Conference of Social Work (Eighth). Munich, Germany. August 5–10.
International Congress of Entomology (Tenth). Montreal, Canada. August 17–25.
International Congress of Human Genetics (First). Copenhagen, Denmark. August 1–6.
International Congress on Medical Records (Second). Shoreham Hotel, Washington, D. C. October 1–5.
National Council on Family Relations. Minneapolis, Minn. August 23–26.
National Medical Association. 58th Annual Convention. Palmer House, Chicago, Ill. August 13–16.
National Recreation Association—Recreation Congress. Philadelphia, Pa. September 30–October 5.
National Safety Council. Conrad Hilton Hotel, Chicago, Ill. October 22–26.
National Society for Crippled Children and Adults. Hotel Statler, Washington, D. C. October 28–31.
Pan American Sanitary Organization—WHO Regional Committee for the Americas. Guatemala, C. A. September 16–20.
World Medical Assembly. Havana, Cuba. October 9–14.

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Equitable Life Assurance Society of the United States, New York, N. Y.
Grand Concourse Medical Group, New York, N. Y.
Hellige, Inc., Garden City, N. Y.
Hoffmann-La Roche, Inc., Nutley, N. J.
International Association of Ice Cream Manufacturers, Washington, D. C.
International Association of Machinists, Washington, D. C.
International Equipment Company, Boston, Mass.
International Union, UAW, Detroit, Mich.
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Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.
Liberty Mutual Insurance Companies, Boston, Mass.
Licensed Beverage Industries, Inc., New York, N. Y.
Life Insurance Company of Virginia, Richmond, Va.
Lily-Tulip Cup Corporation, New York, N. Y.
Merck & Company, Inc., Rahway, N. J.
Metropolitan Life Insurance Company, New York, N. Y.
Montefiore Hospital Medical Group, New York, N. Y.
National Association of Social Workers, Medical Social Work Section, New York, N. Y.
National Dairy Products Corporation, New York, N. Y.
New York Hotel Trades Council and Hotel Association Health Center, Inc., New York, N. Y.
Oval Wood Dish Corp., Tupper Lake, N. Y.
Owens-Illinois Glass Company, Libbey Glass Division, Toledo, Ohio
Prudential Insurance Company of America, Newark, N. J.
Rip Van Winkle Clinic, Hudson, N. Y.
Ross Laboratories, Columbus, Ohio
Ross-Loos Medical Group, Los Angeles, Calif.
Sealright Company, Inc., Fulton, N. Y.
Sharp and Dohme, Inc., Glenolden, Pa.
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Sodiphene Company, Kansas City, Mo.
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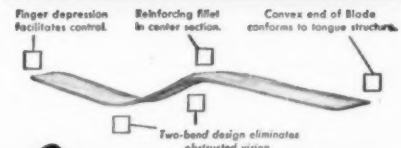
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